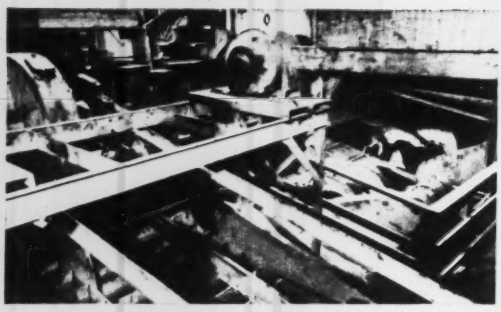
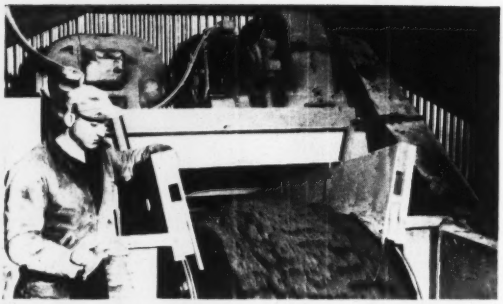
ENGINEERING NEWS-RECORD

A McGRAW-HILL PUBLICATION

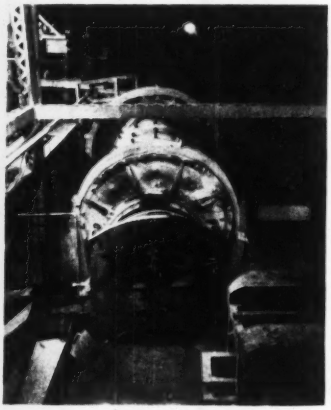


Aggregate under 6 inches is separated in shakers at screening plant. A G-E 5-hp motor drives shakers. Plant is completely automatic.



Carrying cement mix along this indoor conveyor system is a crucial step in construction of the dam. Sturdy G-E 100-hp motor drives the belt.

Aggregate for batching plant at Hungry Horse Dam is carried 1600 feet up the canyon wall by conveyor, driven by reliable G-E 100-hp motors in wooden sheds at intervals of 250 to 300 feet.



This Marcy rod mill, used in the gravel-crushing operation at the screening plant, is driven by a G-E 200-hp motor (right center). The motor is protected against heavy dust.

push-button aggregate processing at 700 tons/hr.

... Electrically

General-Shea-Morrison, contractors for the Bureau of Reclamation's Hungry Horse Dam, are going all-out with electric equipment. Best example is their aggregate plant with its network of interconnecting conveyors geared to process 700 tons of raw aggregate every hour. It's one of the most modern installations of its kind in the country—strictly a push-button operation from raw aggregate handling to mixing. Only with modern electric drives can this world's fourth largest dam be completed on schedule in 1952.

As time goes on, contractors are discovering more and more that it pays to electrify. With co-ordinated use of G-E motors and control and G-E power-distribution systems, they're getting safer, more flexible, and more efficient operation. *Apparatus Department, General Electric Company, Schenectady 5, N.Y.*

Ask him Today!

Whether you buy or build construction equipment, your G-E representative can show you how to do a better job — at lower cost — by complete electrification. Write him now, and he'll call on you at your convenience.

GENERAL ELECTRIC

664-16

HERE ARE THE Tie-Rods YOU NEED

Whenever you need tie-rods for construction, you can count on Bethlehem meeting your requirements. For Bethlehem turns out tie-rods in a wide variety of styles and sizes, and in two types.

We make tie-rods with rolled threads in thread diameters up to 1½ in. We also furnish rods with cut threads, either plain or upset, in thread diameters up to 4½ in. All Bethlehem Tie-Rods are supplied in lengths to meet individual requirements. They come straight or bent, in single or multiple units, either asphaltum-dipped or hot-dip galvanized.

Other Bethlehem Fasteners for Construction

SPIKES RIVETS SLEEVE NUTS
TIMBER BOLTS TURNBUCKLES CLEVISES
STANDARD AND SPECIAL BOLTS

BETHLEHEM STEEL COMPANY, BETHLEHEM, PA.

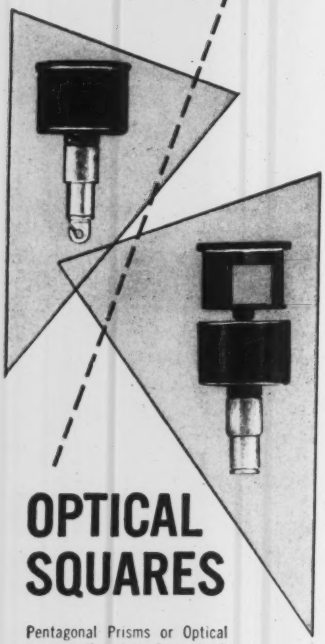
On the Pacific Coast Bethlehem products are sold by Bethlehem Pacific Coast Steel Corporation. Export Distributor: Bethlehem Steel Export Corporation

BETHLEHEM STEEL

Bethlehem supplies every type of Fastener

For your WATCH CHAIN

WILD
HEERBRUGG



OPTICAL SQUARES

Pentagonal Prisms or Optical Squares the size of a plumb bob and the weight of a jack knife can be kept on your watch chain.

The Optical Square is a handy tool for checking on location, for alignment, and for laying out right angles. Speedily used as a hand level, it has an accuracy in leveling of 1 inch in 200 feet. The instrument is available in single and double prisms.

For further detailed information on the operation and use of Optical Squares call or write for Bklt NR 322.

Complete repair and servicing facilities by factory specialists.

HENRY WILD
SURVEYING INSTRUMENT SUPPLY CO.
OF AMERICA, INC.
26 COURT ST., BROOKLYN 2, N. Y. TRiangle 5-0644

ENGINEERING NEWS-RECORD

ABP Member ABC

Volume 146 MARCH 22, 1951 No. 12

WALDO G. BOWMAN
Editor

FEATURES IN THIS ISSUE

Welded bridges of the future—less steel 24
Israel banks on its immigrants ..... W. G. Bowman 26
Pipelines to UN 30
Pier form for two-span highway bridge assembled on shore 31
Short-run local travel is major traffic problem 31
Winter concreting on barge canal lock repair 32
Settling of coal-breaker wash water prevents stream pollution 34
Colonial powers discuss Africa transport integration ..... F. Brewster 36
Perspective—Letter from Pittsburgh 80

DEPARTMENTS

Construction Week 9
Construction Trends 11
Editorials 13
News of the Week 15
Notes on Legal Decisions 37
Field and Office 38
Municipal Affairs 39
Men and Jobs 42
Developments Abroad 44
Education and Research 45
Meetings 46
Obituaries 47
Unit Prices 49
Construction Reports 50
New Products 71

Number of copies of this issue printed 45,598

Managing Editor—Eugene E. Halmos, Jr.
Associate Editors—*New York*, V. T. Boughton (senior associate), R. H. Dodds, F. S. Merritt; *Chicago*, J. R. Carr; *San Francisco*, L. L. Wise; *Washington*, V. B. Smith.
Assistant Editors—*New York*, Melvin Dean, Arthur J. Fox, Jr., T. D. MacGregor, D. E. Reilly.
Staff Assistants—Mary Kiernan, *Research*; Ethel Lyon, *Makeup*; Leo Tarpey, *Printing*; Louise Barker, Madalene Smith, *Editorial*.
Business News—Elsie Eaves, *Manager*; E. M. Huber, Ruth Meyer, J. A. Mahoney, M. W. Roessler, M. Wetzel.
Contributing Editors—N. A. Bowers, Edward J. Cleary.
Domestic News Bureaus—Atlanta, Chicago, Cleveland, Detroit, Houston, Los Angeles, San Francisco, Washington. Correspondents in 71 cities in the United States, Canada and Mexico.
Foreign News Bureaus—London, Frankfurt, Paris, Moscow, Tokyo, Bombay, Melbourne, Rio de Janeiro, Mexico City, *Correspondents*—Athens, Rome, Caracas, Buenos Aires, Santiago, Shanghai, Zurich, Johannesburg and 40 other cities.

ROBERT F. BOGER
Publisher

March 22, 1951 ENGINEERING NEWS-RECORD Vol. 146—No. 12
Member ABC and ABP

Published weekly by McGraw-Hill Publishing Company, Inc., James H. McGraw (1860-1948), Founder. **Publication Office, 99-129 North Broadway, Albany 1, N. Y.**

Executive, Editorial and Advertising Offices: McGraw-Hill Building, 330 W. 42nd St., New York 18, N. Y. Curtis W. McGraw, President; Willard Chevalier, Executive Vice-President; Joseph A. Gerardi, Vice-President and Treasurer; John J. Cooke, Secretary; Paul Montgomery, Senior Vice-President, Publications Division; Ralph B. Smith, Editorial Director; Nelson Bond, Vice-President and Director of Advertising; J. E. Blackburn, Jr., Vice-President and Director of Circulation.

Subscriptions: Address correspondence to Engineering News-Record—Subscription Service, 99-129 N. Broadway, Albany 1, N. Y., or 330 W. 42nd St., New York 18, N. Y. Allow ten days for change of address.

Please indicate position and company connection on all subscription orders.

Single copies 35¢. Subscription rates—United States and possessions, $6.00 a year; $9.00 for two years; $12.00 for three years. Canada, $8.00 a year; $12.00 for two years; $16.00 for three years. Pan American countries, $10.00 a year; $16.00 for two years; $20.00 for three years. All other countries, $20.00 a year; $30.00 for two years; $40.00 for three years. Entered as second class matter October 29, 1936, at the Post Office at Albany, N. Y., under Act of Mar. 3, 1879. Printed in U. S. A. Copyright 1951 by McGraw-Hill Publishing Co., Inc.—All Rights Reserved.

Here's a Real Rock Shovel

—*in a job that isn't Rock.*—But, it's tough digging just the same. Look at those tooth marks! And, that's why a Northwest makes money. If you have a real Rock Shovel you are sure of output in easy digging. Built for the tough jobs, it handles the easy jobs, easily.

Guy F. Atkinson of San Francisco, has handled all classes of work. This company can own any make of machine it wants to—and Guy Atkinson has just put the nineteenth Northwest to work. That is *19 repeat orders!*

Northwest advantages—ease of upkeep, digging power, smoothness of travel—in short Northwest ability to make money—*a result of service, dependability and output has resulted in one out of every three Northwests being a repeat order.* You need Northwest qualities on your jobs. You can plan to have them! Join the Northwest Crowd.

NORTHWEST ENGINEERING COMPANY
1502 Field Building, 135 South LaSalle Street,
Chicago 3, Illinois

GUY F. ATKINSON puts his nineteenth NORTHWEST to work

NORTHWEST

CRAWLER and TRUCK MOUNTED SHOVELS • CRANES • DRAGLINES • PULLSHOVELS

SAVE HOURS ON

CONDUIT AND PIPE

INSTALLATIONS

...with a GREENLEE PIPE BENDER

Cut costs, speed your jobs this efficient, easy, economical way. Make "on the job" bends in pipe and rigid conduit up to 5", thin-wall conduit and tubing with a GREENLEE Hydraulic Bender. One man operated for fast, accurate, uniform bending. Simple to operate, easy to set up and shift from job to job. Not only saves labor, but eliminates cost of many manufactured bends and fittings. Often pays for itself on first few jobs. Write today for free folder No. E-201.

TOOLS FOR CRAFTSMEN

GREENLEE

Other GREENLEE timesaving tools for industry: Hand Benders for Tubing • Hydraulic Pipe Pushers Knockout Tools • Auger Bits and Drills • Spiral Screw Drivers • Chisels and Gouges • And many others. Greenlee Tool Co., 2224 Columbia Ave., Rockford, Ill.

NEWS BRIEFS

Page King Canute—Unless the city of Boston builds a seawall costing at least $60,000, it will lose a $1,000,000 building at the Deer Island House of Correction, Albert E. Dessaulniers, deputy penal institutions commissioner, has warned the city council. The sea is now only 30 ft away from the north side of the building, and too much delay will result in the loss of the structure, he predicts.

Some chuckhole—At Roseville, Calif., recently a street repair crew was called to fix "a bad chuckhole" in a downtown alley. It was discovered that heavy rains had opened up an old well 200 ft deep!

Hard winter—The first thaw in eleven weeks combined with heavy rains recently turned rural roads in Indiana into quagmires. In a dozen or more counties schools were closed temporarily because the school buses couldn't get through. In Indianapolis Mayor Phillip L. Boyt estimated that recent bad weather had caused damage of $500,000 to city streets. Road conditions in Lawrence County were described by County Highway Superintendent Lee Thompson as the worst on record, and he says the county won't be able to build new roads this year because his department will have to devote all its resources to repair work.

To control rain-makers—It may require a license to tinker around with Arizona's clouds if there is enacted a state bill to regulate rainmaking, stipulating a $100 license fee, an outline of qualifications, and a declaration of intent as to where the rain is to be precipitated. But if one owns property, he can make all the rain he wants to—so long as he confines it to his own land.

Happy ending—Reference was made recently (ENR Feb. 22, page 15) to the dilemma of a Maryland contractor who had done $30,000 worth of work on a University of Maryland building without a written contract. On Feb. 13 he and the president of the university scored a victory when two of the three members of the Board of Public Works voted to complete the Princess Anne College building begun several months ago without written authority.

Never despair—Reminiscent of Washington W. Roebling, who, after being crippled, watched the completion of his Brooklyn Bridge work from the window of his home on Brooklyn Heights, is the case of Benjamin B. Weld, a Rochester, N. Y., contractor, hospitalized for almost three months with a hip injury. Mr. Weld, with the aid of his wife—secretary and son—partner, is conducting his business from his bed in St. Mary's Hospital. On a nearby table are a slide rule, a T-square, a triangle, blueprints, estimates and a telephone. It's hard to keep a good man down.

Water diviner again—A well with a capacity of 1 mgd., making it probably the largest in the area, has been brought in on Mercer Island, east of Seattle, Wash., after a water diviner told the Mercer Island Co-operative Water Association where to dig. The association had dug three or four test holes in lower ground in the vicinity before calling on the man with the forked hazel branch. Sunk to a depth of 62 ft., the well is in a 24-ft. thick stratum of sand and gravel which carries the water down from nearby mountains across the lake. Before drilling of the well, many residents of the island had to use chlorinated water from Lake Washington.

Public-spirited dentists — Indiana's State Dental Association has indorsed addition of fluorides to water supply to reduce tooth decay. Calling them no cure-all, the group said, however, that 42 U. S. and Canadian cities now use fluorides in water with a resulting 40 to 60% reduction in decay.

Worldwide water control—A new task has been urged on the United Nations—that of promoting international cooperation on the broad subject of water control. The proposal will be considered when the U. N.'s Economic and Social Council of 18 member states meets this month in Santiago, Chile. It is thought that such an undertaking would help stimulate economic development in backward areas.

The Cover

The Associated General Contractors of America had plenty of serious things to talk about at their annual convention Feb. 26-Mar. 1 in Boston (ENR March 8, p. 23).

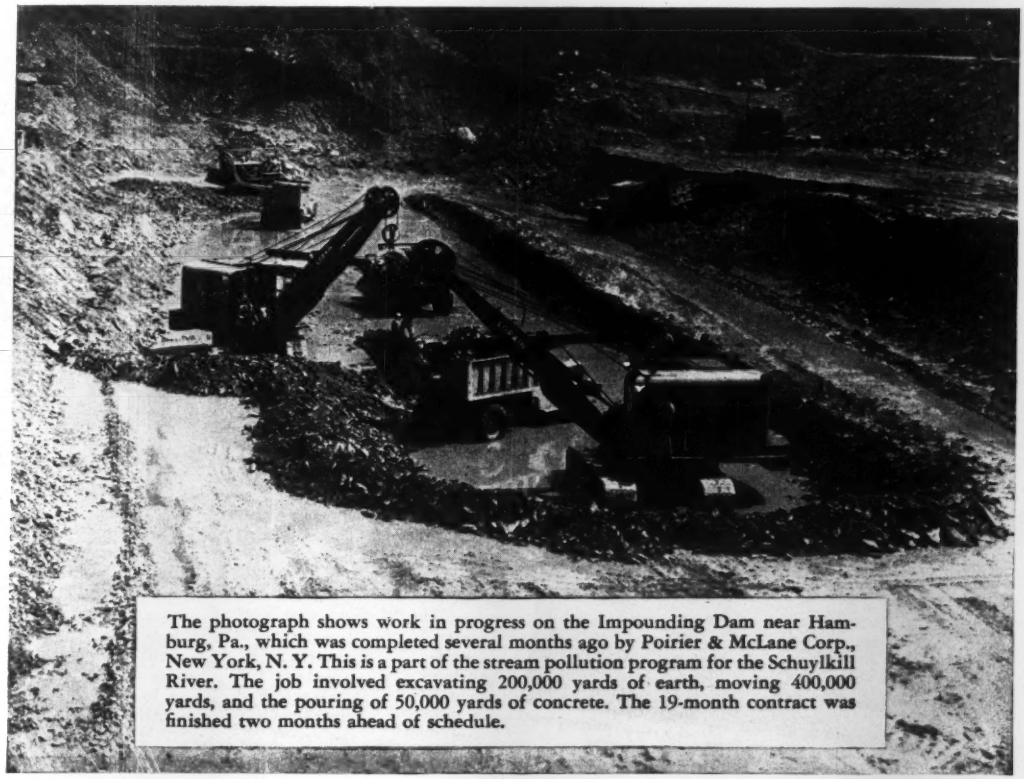
But they also had time for other "conventional" matters.

Here, Walter L. Couse, Detroit contractor and retiring AGC president (left), hands the gavel to the new president—Glen W. Maxon, of Dayton, Ohio (right). Onlooker is Arthur J. Horner of Denver, who at the same time became AGC vice-president (and therefore next president).

GULF PRODUCTS *and* FINE SERVICE

keep equipment rolling

on Impounding Dam Project



The photograph shows work in progress on the Impounding Dam near Hamburg, Pa., which was completed several months ago by Poirier & McLane Corp., New York, N. Y. This is a part of the stream pollution program for the Schuylkill River. The job involved excavating 200,000 yards of earth, moving 400,000 yards, and the pouring of 50,000 yards of concrete. The 19-month contract was finished two months ahead of schedule.

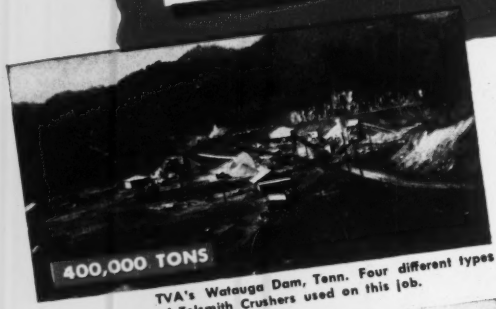
POIRIER & McLANE CORP. is one of a number of prominent New York contractors who find that the use of Gulf quality lubricants and fuels is a big help in beating contract schedules.

There are three solid reasons why so many leading contractors select the petroleum products bearing the familiar Gulf Orange Disc. One is performance—the kind of lubricant and fuel efficiency that insures smooth, dependable operation and low maintenance cost. Another is the high type of engineering service Gulf provides to help insure that the most suitable lubricants and fuels are used for every unit and operating condition. Third, Gulf's prompt delivery service.

Write, wire or phone your nearest Gulf office today and arrange to use Gulf quality products on your next job. Gulf Oil Corporation • Gulf Refining Company, Gulf Building, Pittsburgh, Pennsylvania.

FIFTY YEARS OF SERVICE
1901 GULF 1951
PETROLEUM AND ITS PRODUCTS

TELSMITH EQUIPMENT FOR DAMS



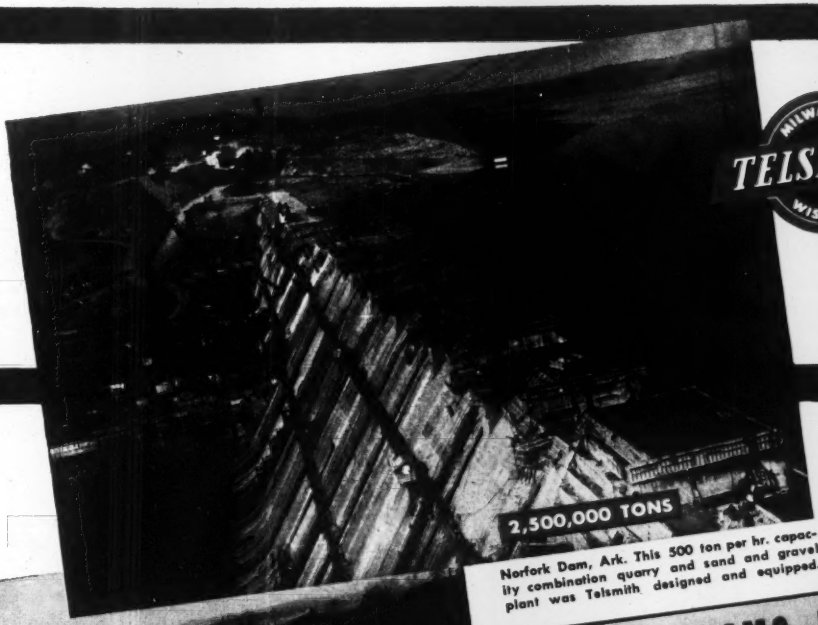
TVA's Watauga Dam, Tenn. Four different types of Telsmith Crushers used on this job.

● Huge dam projects and Telsmith Aggregate Plants go together. Many dam builders call in Telsmith engineers right at the start—for consultation as to the proper plant layout and the right equipment to use. Then Telsmith makes the detailed drawings for the erection of the plant and furnishes most of the machinery. Telsmith designed plants have proven their efficiency on many large projects and Telsmith equipment has a world-wide reputation for the production of low-cost aggregate. The ruggedness of Telsmith equipment is strikingly demonstrated by long life in severest service, on successive projects. After producing 1,500,000 tons of aggregate at Center Hill Dam, the same Telsmith equipment is now turning out about the same amount of aggregate at Buggs Island Dam.

Center Hill Dam, Tenn. Telsmith designed complete crushing-screening plant; and furnished most of the equipment.

Buggs Island Dam, Va. This Telsmith crushing plant also produced the aggregate for Center Hill Dam.

Save **TIME and MONEY** **Consult Telsmith Engineers—Ask for Bulletins 266 and 271**



Norfork Dam, Ark. This 500 ton per hr. capacity combination quarry and sand and gravel plant was Telsmith designed and equipped.

Philpott Dam, Va. Here, too, the crushing-screening equipment is Telsmith.

Mount Morris, Dam, N. Y. The 300-350 tons per hour rock crushing plant is Telsmith designed and equipped.

OTHER DAMS BUILT WITH TELSMITH EQUIPMENT

- Alatoona Dam, Georgia
- Ariel Dam, Ariel, Wash.
- Boysen Dam, Shoshoni, Wyo.
- Carpenter Dam, Arkansas
- Cascade Dam, Washington
- Clark Hill Dam, Augusta, Ga.
- Conowingo Dam, Conowingo, Md.
- Dale Hollow Dam, Tennessee
- Davis Dam, Nevada
- El Presidente Dam, Mexico
- Fort Gibson Dam, Oklahoma
- Grand Coulee Dam, Washington
- Kortes Dam, Wyoming
- Morony Dam, Montana
- South Holston Dam, Tennessee

MS-11

SMITH ENGINEERING WORKS

500 EAST CAPITOL DRIVE, MILWAUKEE 12, WISCONSIN

Cable Address: Sengworks, Milwaukee

51 East 42nd St. New York 17, N. Y. — 211 W. Wacker Drive Chicago 6, Ill. — 713 Commercial Trust Bldg. Philadelphia 2, Pa. — 238 Main Street Cambridge 42, Mass. — Boehck Eqpt. Co. Milwaukee 3, Wis. — A. N. Wigle, 362 S. Ashburton Rd. Columbus 13, Ohio

Clyde Eqpt. Co., Portland 9, Ore., & Seattle 4, Wash. • Mines Eng. & Eqpt. Co., San Francisco 4, Calif. • Interstate Equipment Co., Statesville, N. C.

Rish Eqpt. Co., Charleston 22, & Clarksburg, W. Va.—Roanoke 7, & Richmond 10, Va. • Wilson-Weesner-Wilkinson Co., Knoxville 8, & Nashville 6, Tenn.

How to plan

STEAM DESUPERHEATER PIPING CONNECTIONS

In plants where steam is required at lower than boiler pressure, it is usually obtained by means of pressure reducing valves. This low pressure steam is highly superheated and the superheat must be removed before it can be used in low pressure equipment.

The system shown employs pressure reducing valves and a desuperheater. These valves in turn operate water regulator valves which allow water at high pressure from the boiler feed pumps to flow to the desuperheater nozzle. An automatic regulator controls the amount of water flow based on the downstream temperature.

For the distribution of high pressure steam, Jenkins Fig. 1012 Cast Steel, Outside Screw and Yoke Gate Valves are recommended. Ruggedly designed to withstand pressure strains and rapidly vibrating steam currents, these valves, when fully open, permit an unobstructed flow. Screwed-in seats are replaceable and valves can be packed under pressure.

Consultation with accredited piping engineers and contractors is recommended when planning any piping installation.

A CHOICE OF OVER 500 VALVES

To save time, to simplify planning, to get all the advantages of Jenkins specialized valve engineering, select all the valves you need from the Jenkins Catalog. It's your best assurance of *lowest cost in the long run.*

Jenkins Bros.: 100 Park Ave., New York 17; Bridgeport, Conn.; Boston; Philadelphia; Chicago; San Francisco; Atlanta. Jenkins Bros., Ltd., Montreal.

NEW BOOK OF PIPING LAYOUTS, Nos. 26 to 50
A new book of Jenkins Practical Piping Layouts — Nos. 26 to 50 — will be sent on request. Mail coupon for your copy.

JENKINS BROS.,
100 Park Ave., New York 17, N. Y.

Please send Book of Piping Layouts Nos. 26-50.

Name

Company

Address

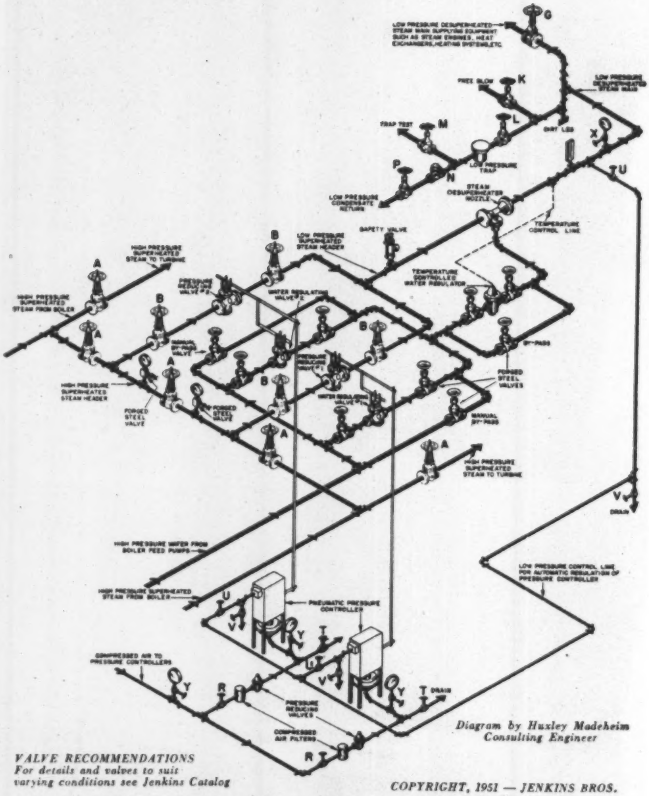

HIGH PRESSURE SUPERHEATED STEAM TO TURBINE
HIGH PRESSURE SUPERHEATED STEAM FROM BOILER
HIGH PRESSURE SUPERHEATED STEAM HEADER
FORGED STEEL VALVE
LOW PRESSURE SUPERHEATED STEAM HEADER
SAFETY VALVE
TEMPERATURE CONTROL LINE
TEMPERATURE CONTROLLED WATER REGULATOR
WATER REGULATOR VALVE
MANUAL BY-PASS VALVE
PRESSURE REDUCING VALVE
HIGH PRESSURE WATER FROM BOILER FEED PUMPS
PNEUMATIC PRESSURE CONTROLLER
LOW PRESSURE CONTROL LINE FOR AUTOMATIC REGULATION OF PRESSURE CONTROLLER
COMPRESSED AIR TO PNEUMATIC CONTROLLERS
PRESSURE REDUCING VALVES
COMPRESSED AIR FILTERS
DRAIN
LOW PRESSURE DESUPERHEATED STEAM AND SUPPLYING EQUIPMENT SUCH AS STEAM ENGINES, HEAT EXCHANGERS, HEATING SYSTEMS, ETC.
LOW PRESSURE DESUPERHEATED STEAM MAIN
FREE BLOW
TRAP TEST
DRY LEG
LOW PRESSURE TRAP
STEAM DESUPERHEATER NOZZLE
LOW PRESSURE CONDENSATE RETURN

Diagram by Huxley Madeheim Consulting Engineer

VALVE RECOMMENDATIONS
For details and valves to suit varying conditions see Jenkins Catalog

COPYRIGHT, 1951 — JENKINS BROS.

Code	Quan.	Jenkins Valves	Service
A	5	Fig. 1012 Cast Steel Gate	High Pressure Superheated Steam Distribution
B	4	Fig. 1012 Cast Steel Gate	Pressure Reducing Valve Shutoff
G	1	Fig. 1009 Cast Steel Gate	Low Pressure Desuperheated Steam Shutoff
K	1	Fig. 106-A Bronze Globe	Condensate Free Blow
L	1	Fig. 670 Bronze Gate	Condensate to Trap Shutoff
M	1	Fig. 106-A Bronze Globe	Trap Test
N	1	Fig. 92 Bronze Check	Prevent Condensate Backflow
P	1	Fig. 670 Bronze Gate	Condensate Shutoff
R	2	Fig. 106-A Bronze Globe	Compressed Air Supply to Pneumatic Controllers
T	2	Fig. 106-A Bronze Globe	Compressed Air Line Drains
U	3	Fig. 106-A Bronze Globe	Pressure Control Line Drains
X	1	Fig. 741-G Bronze Needle	Pressure Gauge Control
Y	3	Fig. 741-G Bronze Needle	Compressed Air Pressure Gauge Control

JENKINS
LOOK FOR THE DIAMOND MARK
VALVES
SINCE 1864
TRADE JENKINS MARK
Jenkins Bros

THE CONSTRUCTION WEEK

WHO'S GOT CIVIL WORKS?—Hairline distinctions insisted upon by Senate parliamentarians have sent new reorganization bills on federal civil works to two different committees. The proposal for a board of engineering review went to the Public Works Committee; the proposal for transfer of Army civil functions (to the Interior department) went to the Committee on Executive Expenditures.

FRIENDS AT COURT—On the subject of the Army's civil functions, pundits see that public clamor over pork-barrel charges may force Congress to consider the bill that would transfer the civil functions to Interior. But the Army engineers have enough friends in Congress to forestall any shift.

SECONDARY BOYCOTT HALTED—The National Labor Relations Board, in a unanimous decision, has slapped down a secondary boycott by a construction labor union at Portland, Ore. Construction Laborers' Local 320 had induced its members—employed by the contracting firm of Yonker & Pettijohn—not to handle concrete manholes and sewer pipe made by Armco Drainage and Metal Products Co. Purpose, NLRB found, was to force Armco to bargain with the union at its concrete products plant in Portland—where the union held a contract until two years ago. NLRB ordered the union to cease its boycott, pending certification as bargaining agent at the plant.

NECESSITY IS THE MOTHER—Labor has joined with management of five metal sash-and-door plants at Seattle, Wash., in seeking either defense contracts or allocation of materials to enable the plants to keep operating. Earl Lawrence, a local union representative heads a committee to seek aid from the government. Unless contracts and materials are secured, the plants face a shutdown by mid-June.

MIGHTY BLAST—The Corps of Engineers expects to set off 320,000 lb of TNT in a single blast during shock-resistance tests on underground structures this summer. Field Engineer F. W. McGregor, Salt Lake City, reports that tests with various loadings will be held at the Dugway Proving Grounds in Utah, in the Unaweep Canyon near Grand Junction, Colo., and near Castle Dale, Utah. Instrumentation is going into place for tests on structures placed in dry clay, wet clay, dry sand, sandstone and granite.

BRITISH RUBBER LABORATORY FOR U. S. ROADS—The Natural Rubber Bureau—a private trade association connected with the British Rubber Development Board—will establish a laboratory in a Washington, D. C., suburb for experimenting with rubber roads. The aim is to increase the use of natural rubber. Tests stretches of rubber roads already exist in Baltimore, New York, Richmond and several other cities.

BIG DRINK—The Fairless Works of U. S. Steel, to be built on the banks of the Delaware River near Morrisville, Pa. (ENR Feb. 22, p. 25), will scoop in 230 mgd of river for production processes. However, practically all of the water will be returned to the river. An additional 15 mgd will be pumped from underground wells; most of it eventually discharged into the river. Net gain for the Delaware will be 12 mgd.

BELT CONVEYOR RAILROAD PROSPECTS BRIGHTEN—The Ohio Riverlake belt conveyor proposition (ENR Sept. 7, 1950, p. 30) appears destined to get to a vote in the state legislature. Backers of the bill are said to have an excellent chance of winning in the Senate. Railroads of the state—the toughest opposition—have strongest support in the House.

On anything you build NO-OX-ID will stop rust before it starts!

NO-OX-ID stops rust immediately . . . *with a single coating* . . . wherever metal joins metal—or wood—or concrete. NO-OX-ID provides positive chemical and mechanical protection against moisture and other corrosive elements for years. Use NO-OX-ID on your next job—to stop rust before, or after, it starts . . . for long-lasting protection.

NO-OX-ID, the *original* rust preventive, is available in a wide range of consistencies to meet every construction and maintenance requirement. And, note this, easy-to-apply NO-OX-IDs will stop metal loss on surfaces where rust has begun . . . without extensive cleaning or surface preparation.

Consult with your Dearborn engineer who will assist in selecting the correct NO-OX-ID to solve your corrosion problems—efficiently and economically.

SINCE 1887
DEARBORN CHEMICAL COMPANY
310 S. Michigan Ave. • Chicago 4, Illinois

MAIL THE COUPON FOR THIS BOOKLET
An illustrated and informative booklet which gives a complete introduction to the selection and uses of NO-OX-ID rust preventives will be sent on request.

Dearborn Chemical Company
310 S. Michigan Ave., Dept. ENR
Chicago 4, Illinois

Send my copy of NO-OX-ID rust preventive booklet.

Name.....
Company.....
Address.....
City.....*Zone*....*State*.....

Dearborn
Reg. U. S. Pat. Off.
THE ORIGINAL RUST PREVENTIVE
NO – OX – ID
IRON + = RUST

CONSTRUCTION TRENDS

NEED FOR HOSPITALS PERSISTS; PROBABLY "DEPRESSION-PROOF"

Can hospital construction keep up its present pace?

Contractors topped long-standing records in building more than $800 million worth of hospitals last year. Public hospital buildings stayed at about its 1949 level but private construction soared upward—gaining 69% over 1949.

EMERGENCY WILL BRING A DIP—As it looks now, the defense emergency will whittle those figures down this year. Contractors, when surveyed by the Department of Commerce, reported they expect private hospital construction to drop 13%.

Public hospital construction is also likely to dip. Federal aid—through the Hill-Burton grants—will be cut in half in the next fiscal year. This is likely to cut hospital construction by state and local governments. They've had trouble matching the federal grants, in any case.

In addition, the Veterans' Administration program is expected to taper off.

V. A. hospital building would be cut abruptly—if the President had his way. Truman is urging reductions but congressmen want VA programs kept intact.

The President recently moved to cut VA building, by issuing a stop order on $335,600,000 of hospital construction. But the House Committee on Veterans' Affairs quickly restored the full program. The full House and Senate still have to pass on the question but chances are that the program will at least slow down.

The emergency will handicap hospital construction in other ways. Shortages of equipment and trained medical personnel will hamper construction. It was proved in World War II that fewer doctors could handle more patients in existing hospitals.

With doctors being drafted into the armed services, it will be particularly hard to staff new hospitals for mental cases or people with chronic illnesses. These require full-time staffs and are often located in smaller communities where there are few doctors available.

All this indicates that hospital construction is likely to slow up for the duration—as in World War II.

BACK TO 1950 LEVEL—IN LONGER RUN—In the longer run, however, hospital construction may well climb back to its 1950 level. But it may never reach the level indicated by some of the early postwar studies of the country's needs for hospitals.

The best figure we have on the nation's needs for hospitals comes from compiling estimates by the state governments. They estimated in 1949 that the U. S. needed 898,000 new hospital beds—about $11 billion worth of construction.

However, experts in hospital economics believe the total may not actually be as large. For one thing, the state estimates do not allow for VA or other federal hospital programs. For another, new drugs make it possible, and often preferable, to treat patients at home. Pneumonia patients, for example, may be treated at home now while they would have gone to the hospitals a few years ago.

New drugs and new medical techniques also make it possible to handle more patients in existing hospitals. By getting patients onto their feet quickly, doctors shorten the length of the average stay in hospitals.

Then, too, hospitals have learned to operate more efficiently, to keep their average occupancy rate at, say, 90% rather than 80%. And with costs of medical care rising, they need to maintain a high rate to cover their costs.

In addition, experience has shown that the $11-billion estimate may have included too large an allowance for hospitals for patients with chronic illnesses. And time has also shown that some communities have great difficulty in raising funds to build new hospitals to replace facilities now considered obsolete.

ORIGINAL ESTIMATES TOO HIGH—These things all tend to whittle down estimated needs. There are some offsetting factors, but the weight of experience suggests that the original estimates were too high.

Where originally it was estimated that the nation needed to spend $1.1 billion a year for new hospital construction ($11 billion spread over ten years), it now looks as if $600 million to $800 million is more realistic.

This, however, does not include direct federal spending. That's been running about $150 million a year. With it included, total hospital construction requirements come up to about $850 million a year—and perhaps more.

In other words—once the emergency is passed—hospital construction may well go back to its 1950 rate—and possibly run slightly higher.

The hospital field is like schools in one important way. For engineers and contractors specializing in this type of work, it is likely to be depression-proof.

With the nation's accumulated needs for both types of construction so great, the federal government could rapidly boost construction in these fields if general construction activity should turn down.

In short, prospects sum up this way:

Hospital construction may dip in the next few years—under pressure of mobilization demands. But in the long run, well through the 1950's, it promises to continue at a very high level.

WHAT'S YOUR CONCRETING PROBLEM?

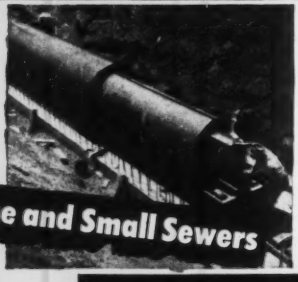
Solve it with BLAW-KNOX STEEL FORMS

WHATEVER your concreting problem—big project or small job—simple or tough—you'll get the job done faster and at lower cost when you use Blaw-Knox Steel Forms. There's no delay for dismantling or assembling . . . fewer operations are necessary . . . and they're tailor-made to fit *your* job, with many perfected details impossible to duplicate in wood.

Call on BLAW-KNOX ENGINEERING SERVICE

BLAW-KNOX engineers, backed by the 40-year experience of the original and most prominent manufacturer of steel forms for engineered construction, will gladly recommend the correct forms for your job. They specialize in helping you plan for the simplified forming methods that save time and materials and keep costs low. This Blaw-Knox consultation service is available to any contractor without obligation.

WRITE FOR BULLETIN 2035 TODAY—
It contains typical examples of the use of Blaw-Knox Steel Forms on big construction projects as well as special design suggestions that may fit your job. Send for your copy now.



Ask about BLAW-KNOX CONCRETE BUCKETS

Model CAC Concrete Bucket is specifically designed for low cost handling and placing of harsh, low slump concrete for mass concrete construction projects. Bulletin 2331 gives complete details.

BLAW-KNOX

BLAW-KNOX DIVISION OF BLAW-KNOX CO., Farmers Bank Bldg., Pittsburgh 22, Pa.
New York • Chicago • Philadelphia • Birmingham • Washington • San Francisco

Reconsider pollution abatement?

Is it not past time for pollution-control authorities to reconsider orders they have issued requiring cities or industries to undertake pollution abatement that will make it necessary for work to start on sewage disposal plants or waste treatment plants in the immediate future?

During the past year or two state sanitary commissions and water-control boards have been stepping up pressure on communities and industries that are discharging untreated wastes into streams over which they have supervision. Their efforts to end such pollution were commendable and gained steadily in public support as the public saw what was being accomplished in the way of cleaning up streams.

But today, with the nation faced by a national emergency requiring the diversion of vast quantities of construction materials and much manpower into meeting the demands of the defense program, that pressure for active continuation of pollution abatement must be relaxed. That may not be a pleasant situation for pollution abatement authorities to contemplate after the work they have put into getting their powers established; yet it must be recognized, both in the interests of the defense program and as a means for maintaining those powers.

If those powers are to be maintained intact, the pollution-control authorities should be the first to recognize this changed situation. We say this because it appears highly probable that if those agencies do not recognize it and act promptly, their powers may be weakened if they try to compel cities or industries to proceed with the construction of sewage or waste disposal plants that do not contribute directly to the defense effort.

Quite understandably, city officials put under pressure to build plants at this time, will undertake to nullify those orders by demonstrating to representatives of the Office of Defense Mobilization that the construction they have been ordered to undertake is not essential to the defense program. That the mobilization authorities will agree with the city officials appears obvious in view of the continuing rise in most types of construction despite their efforts to hold them in check.

Communities might even go so far as to seek new legislation limiting the authority of pollution-control agencies, as has already been suggested in Virginia. Once a route has been found by which orders issued by pollution control authorities can be nullified, closing that route again will be difficult.

Representatives of some commissions have taken the stand that the treatment plants they have ordered or may order to be built will contribute to the defense effort by adding to the nation's dwindling resources of potable water or water that will be needed by new defense plants. That will be true in some instances, but those instances will be few in number.

If pollution-control commissions wish to retain their powers they will need to take a realistic approach to this situation. Orders issued before the present national emergency developed should be reconsidered immediately if work on the ordered treatment plant is not well under way. New orders should then be issued only under the most convincing showing that the work cannot wait until the present peak of construction is past. Such changes should not set their programs back more than two or three years at the most, and might well result in considerable savings over what it will cost to do the work under today's conditions.

Responsibility needed

Construction men for the most part are accepting "Responsibility in the general interest" as the motto guiding their actions these days.

This unselfish sentiment is implicit in the part currently played by construction in the federal controls picture, and it prevailed at the Associated General Contractors of America convention in Boston (ENR Mar. 8, p. 23). It is in recognition of this sense of responsibility that controllers have felt safe in asking construction people for advice. But labor, not fully satisfied with this advisory role, now demands a policy-making part.

At the AGC meeting Joseph D. Keenan, representing the American Federation of Labor building trades, echoed other speakers' claimers of responsibility, then asserted in passionate tones that construction should have a "voice" in determination of federal control policy (particularly with respect to the timing of orders like M-4). The "voice" would come from a small committee of contractors and labor representatives.

At the same time as Mr. Keenan advocated our greater representation in Washington, the capital city was the scene of an appalling instance of irresponsibility on the part of labor.

Labor, its will frustrated by the democratic process (a 6-3 vote in the Wage Stabilization Board), walked out of all affairs of control.

Viewed lightly (as it should not be) this act is one of childish bad manners. Viewed seriously it is mutiny that can harm both the general interest and the cause of labor.

Let us hope that labor can regain sight of the objective, "responsibility in the general interest." We'd like to believe that labor can become qualified to give unselfish help to the controllers.

How to cut your overhead —underground

IF you think that there aren't ways of saving on foundation costs, you'll be surprised when you see what Monotube Steel Piles can do for you.

Monotubes are manufactured in 3 tapers; from a standard 8″ nose they taper uniformly to any of four standard diameters, all extendible for an indefinite length to satisfy conditions known or unforeseen. Gauge of metal may be varied for any section as needed—providing economical construction. These light, sturdy tubes result in structurally sound, lasting installations. Jobs started with Monotubes can be *completed* with them—avoiding delays, complications, and undue expense.

And Monotubes are adaptable to practically any type of structure. Their fluted, cold-rolled construction adds strength and stability to resist severe driving as well as uplift, lateral and torsional forces.

Moreover, Monotubes are light in weight which simplifies and speeds handling. They require no special driving equipment. Cut-offs can be made easily, with minimum waste. These and other advantages mean foundations will *cost less* per ton of load supported.

For complete information, write The Union Metal Manufacturing Company, Canton 5, Ohio.

UNION METAL

Monotube Foundation Piles

ENGINEERING NEWS-RECORD

MARCH 22, 1951 VOL. 146 NO. 12

NPA eases priority drain on construction equipment

National Production Authority sets first six months of 1950 as base for acceptance of defense orders—Move seen as easing supplies to contractors

Contractors and distributors get a better break on construction equipment as a result of recent rulings.

Equipment manufacturers now need accept Defense-rated DO orders for any one month only up to 50% of the average monthly shipments during the first six months of 1950 (ENR March 8, p. 17).

With production increasing in many plants, this limit on mandatory acceptance of DO's allows the manufacturers a workable margin for supplying construction equipment through distributors to U. S. contractors.

Prior to the 50% limitation, issued by the National Production Authority March 2, some manufacturers had received DO orders exceeding half their productive capacity for certain types and models of equipment. Hereafter, they can refuse DO orders calling for deliveries within any month in excess of 50% of the average base period shipments. Since shipments in that period for many types of machines were considerably below the peak, so the 50% limit gives good leeway for supplying regular customers.

But the civilian supply of some construction machines may be much reduced. The armed forces standardize on specific equipment. If the Army, Navy or Air Force require certain machines, NPA can assist the services with directive or other aids where manufacturers decline to accept rated orders under the 50% ceiling. The same assistance could be given the Atomic Energy Commission.

• **More help for builders**—Other help on equipment for U. S. contractors has come from the Defense Department.

On Dec. 29, contractors from overseas construction projects got authority to use DO-21 priority ratings—under certain conditions—to obtain equipment.

The authorization pushed the door wide open: An overseas contractor could apply DO's up to the full value of his project. Within a month, the munitions board canceled the wide-open invitation.

In its place the board instructed the three armed services to follow rigid requirements on equipment purchases for overseas. The chief restriction is this: The government takes title to the equipment at the date of purchase, at some time during the life of the contract, or upon completion of the contract. The contractor cannot keep the equipment.

Other severe conditions were imposed at the same time. Before a contracting office authorizes a DO-21 rating for equipment purchase, he must be sure that: (1) Defense Dept. reserve equipment is not available for the work, (2) construction by troops is not practical, (3) the contractor is fully utilizing all existing equipment in the area, and (4) the equipment cannot be obtained in time without a DO order.

With its directive, the munitions board furnished a form letter to be used for all equipment authorizations to contractors. The letter calls for a description of the equipment items, the dates of required delivery and the purchase price of each item. This price, of course, is the government purchase price from the manufacturer.

• **NPA cautious**—NPA is carefully guarding its DO rating authority for construction equipment. Canadian contractors who wanted DO help on construction machines to build defense installations north of the border were turned down recently. Instead, NPA advised formation of a Canadian government equipment pool to farm out machines to defense contractors.

Use of DO-97 ratings by a contractor (under NPA's recent MRO authorization) can help maintain existing equipment in running order. If a machine is deadlined because of inability to obtain parts, a contractor can apply a priority rating to his order by writing on it—or on a piece of paper attached to it—the symbol "DO-97" and the words "certified under NPA regulation 4," with his signature.

Once a DO-97 is used in this way, the contractor must limit his MRO purchases in any quarter to one-fourth of the firm's dollar purchases for maintenance, repair and operation in 1950.

Regulation X relaxed for A.E.C. housing

For defense housing, Raymond M. Foley, administrator of the Housing and Home Finance Agency, has relaxed credit controls of Regulation X.

Foley's announcement is the first step in a government program designed to supply homes for defense workers. The initial order will supply 1,000 housing units at Paducah, Ky., and will meet an estimated need for 3,600 units at the Savannah River site in South Carolina—both Atomic Energy Commission projects.

Relaxation of controls for housing within reasonable commuting distances of these projects are restricted to specific rental housing programmed by the HHFA and to the sale of housing to purchasers with AEC certificates.

The following credit arrangements may set a pattern for coming relaxation of Regulation X in other areas. New moves will be announced as the Office of Defense Mobilization and its Inter-Agency Committee designate and outline new defense areas.

For veteran's single family purchases:

Value Per Family Unit	Maximum Loan Allowed
$5,000 or less	95% of value
$5,000-$6,000	$4,750 plus 100% of value over $5,000
$6,000-$8,000	$5,750 plus 92½% of value over $6,000
$8,000-$9,000	$7,600 plus 90% of value over $8,000
$9,000-$11,000	$8,500 plus 75% of value over $9,000
$11,000-$12,000	$10,000 plus 65% of value over $11,000
$12,000-$15,000	$10,650 plus 40% of value over $12,000
$15,000-$25,000	$11,850 plus 19% of value over $15,000
Over $25,000	55% of value

New terms allowed on multi-unit rental housing, both conventional and government-supported are shown in the following table:

Value Per Family Unit	Maximum Loan Allowed
$7,000 or less	90% of value
$7,000-$15,000	$6,300 plus 60% of value over $7,000
$15,000-$25,000	$11,100 plus 14% of value over $15,000
Over $25,000	50% of value

Railway engineers plan to operate on emergency maintenance work basis

Railway engineers gathered in Chicago last week for the annual meeting of the American Railway Engineering Association in an atmosphere not unlike that of the tense days at the onset of World War II. Again the railroads are faced with a sharply rising traffic load and a loss of manpower to the defense industries.

The association, said its president, H. S. Loeffler, has reestablished the five emergency committees that functioned during World War II to deal with special problems growing out of the nation's defense effort.

At the opening session, James H. Aydelott, vice president in charge of the Operations and Maintenance Department of the Association of American Railroads, said that the chief problem of the maintenance engineers in this critical period will be meeting the impending manpower shortage. This can be met in part by more extensive mechanization of maintenance work. However, unless a major war develops and if steel production increases as now planned, Mr. Aydelott sees no reason why there should not be steel enough for the current car-building program of 10,000 cars a month and for track and bridge requirements.

• **Under attack**—However, Aydelott said, this car building program has been under attack lately. The goal originally set for January 1 of this year will not be reached in spite of a continuing shortage of "cars which will possibly grow as defense and farm production expands.

"New locomotive production schedules have similarly been delayed," Aydelott said, "and apparently will be cut back approximately 25% from the schedule originally filed."

• **Mechanization of maintenance**—One of the reports considered at the meeting outlined recent developments in machines for a variety of maintenance problems. These include improved equipment for ballast cleaning—some diesel driven—a portable ballast cleaner for use where the large track-mounted cleaners cannot be used, and a portable high-frequency rail inspecting device small enough to be carried in a pack on the inspector's back.

• **A highway engineer speaks**—An innovation in program planning was inclusion of a highway engineer as a speaker at the opening session. J. A. Anderson, president of the American Association of State Highway Officials, said that he could see a close parallel between the problems faced by railway maintenance engineers during World War II and those faced by highway engineers. In both instances he said, the engineers' problems were accentuated by what appeared to be a belief in Washington that highways and railways were expendable. He hopes that the same type of thinking can be avoided this time.

Tom A. Blair, AREA President

• **New president**—Tom A. Blair, chief engineer of the Atchison, Topeka & Santa Fe Ry., was elected president of the association to succeed H. S. Loeffler, assistant chief engineer of the Great Northern Ry.

Mr. Blair is a civil engineering graduate of the University of Colorado in 1913. He began work with the Santa Fe system in 1915, becoming chief engineer of Western Lines in 1938 and chief engineer for the system in 1948. During World War I he served in the AEF as a first lieutenant in the 115th Engineers, U. S. Army.

Charles J. Geyer, vice president in charge of construction and maintenance, Chesapeake and Ohio Ry., was advanced to senior vice president of the association, and Charles G. Grove, chief engineer, maintenance-of-way, Pennsylvania R.R., was elected to succeed him.

Honorary membership was conferred on John E. Armstrong, chief engineer of the Canadian Pacific Ry., and president of the association in 1935.

Labor sought for offshore work by joint ventures

Last week midwest newspapers carried advertisements asking construction laborers to apply for work with North Atlantic Constructors, a joint venture formed to do offshore general construction for the North Atlantic Division, U. S. Corps of Engineers.

North Atlantic Constructors with offices at 61 Broadway, New York, is composed of Peter Kiewit Son's Co., and Condon-Cunningham Co., both of Omaha, and Al Johnson Const. Co. and S. J. Groves and Sons Co., both of Minneapolis. The group also has an office in Minneapolis.

Skilled and unskilled construction men between the ages of 27 and 50 (those subject to military draft will not be considered) are invited to register with their local State Employment Service office and to keep in touch.

A North Atlantic Constructors fieldman will visit the state office soon to hire men.

NSPE names officers

L. L. Dresser, oil engineer and civic leader of Tulsa, Okla., has been named president of the National Society of Professional Engineers.

Dresser is at present vice-president of the Southwestern Area, NSPE, and a holder of many national and state society officers. He is president of the Dresser Engineering Company, Tulsa, and serving on various committees of that city's Chamber of Commerce.

New vice-presidents of the society have been named as follows: George J. Nicastro, Combustion Engineering-Superheater, Inc., of New York; John F. Reynolds of Reynolds, Smith and Hills, Jacksonville, Fla.; Chester Lichtenberg, of Fort Wayne, Ind.; C. G. Roush, Westinghouse Electric Corp., Kansas City; T. C. Forrest, Jr., of Forrest and Cotton, Dallas; DeWitt C. Griffin of DeWitt C. Griffin and Associates, Seattle; and Russell B. Allen of College Park, Md., professor of engineering, Maryland University.

Freighter rams Delaware River Memorial bridge

The masonry base of the east tower of the $40-million Delaware River Memorial Bridge (ENR Jan. 26, 1950, p. 28) now under construction near Wilmington, Del., was damaged last week when it was rammed by a ship during a blinding rainstorm.

The intercoastal freighter, "John B. Waterman," of the Waterman Steamship Co., Mobile, Ala. and Baltimore, Md., hit the southwest pier corner.

According to Homer R. Seely, project engineer for the bridge, damage was "severe." He said that granite facing was broken away and some struts embedded in the pier were damaged.

The accident will not alter the proposed opening date of the new span on July 1, he said. Structural integrity is not impaired.

ARBA speakers propose solutions for roadbuilding problems under controls

Milwaukee convention says states want roadbuilding materials allocated through BPR; contractors seek 48-hr. work week controls.

J. R. Carr
Associate Editor

Highways are not expendable during the present emergency—either from the standpoint of defense preparedness or the continuation of a high level of civilian economy.

This single point was hammered home by state, federal and industrial speakers at the 48th annual convention of the American Road Builders' Association last week at Milwaukee, Wis.

This year's convention was in sharp contrast to last year's meeting in Cincinnati (ENR, Mar. 16, 1950, p. 25). At that time, chief emphasis was placed on securing more federal aid money and proper enabling state legislation to speed the work. Today, many highway departments have, or can see their way to securing, the necessary funds, but fear their activities will be curtailed by manpower, machinery and material shortages.

Registration at the three-day meeting totaled 810. In addition, over 300 members and guests of the Wisconsin Road Builders' Association held their annual meeting simultaneously and served as convention hosts. Tentative plans are to hold the next annual meeting of ARBA in Houston, Texas, next January.

• **What ARBA wants**—Resolutions adopted at the closing session of the three-day meeting disclosed that the ARBA wants the following:

Early determination of the essentiality of highways in both the defense effort and the civilian economy, and establishment of priority assistance to assure their expeditious completion; recognition by defense authorities of the Bureau of Public Roads as the logical and appropriate agency to handle highway problems arising out of the national emergency.

Also, establishment of a 48-hour work week for the duration of the emergency; development of suitable new and alternate airport access routes, and appropriations up to the $100 million-a-year level authorized under the Federal-Aid-Airport Act; a well balanced program of highway construction to include primary, urban, secondary and local roads; and federal reimbursement to states and their political subdivisions for damages to highways caused by any branch of the U. S. armed forces.

The group also went on record as offering its personnel services and equipment in any capacity needed to assist in civil defense work.

• **Industry's role in defense**—Industry recognizes the need for material controls in our national defense program, and stands ready to do the job expected of it.

This was emphasized in a paper prepared by M. B. Garber and presented at the conference by C. B. Smythe, of the Thew Shovel Co.

Garber declared that industry is self-activating to a large degree—if it is properly informed as to requirements and as to what is expected of it.

"Military pools of materials and equipment should be stockpiled to a degree of safety for current needs," he said, "but such stockpiling must not be excessive. Controls must not throttle industry's initiative; they must be helpful and not a hindrance. . . .

"In view of the accepted fact that highways are of the highest importance it is literally astounding," said Garber, "to hear talk of major cuts in our highway program. If construction equipment is badly needed for highway or airport work and if the short supply is due to military procurement, equipment should be diverted from existing contracts or stockpiles, providing the military position is currently safe."

• **Military combat materials**—As to special military combat materials, Garber suggested such products be manufactured in government-operated plants. Such plants could best be operated by private industry, as was done in the last war. He also suggested that, once sufficient emergency stockpiles of these materials have been built up, production be continued on a stand-by basis by maintaining separate plant facilities.

Such a plan can be applied to all industries whose products are not essential to full-scale war plants. But it needs an interim period of orderly planning and stockpiling. Raw materials would be conserved; much confusion would be eliminated; the obsolescence of specialized war materials would be minimized; and wasteful surplus disposal would be avoided.

• **Highways for the military**—Both Lt. Col. C. C. Albaugh, military planning division, and D. K. Chacey, highway engineer, of the Office of Chief of Transportation, U. S. Army, expressed views similar to those of Mr. Garber's on the need for an adequate highway system to aid the military.

Special emphasis, declared Col. Albaugh, should be placed on continued coordinated improvement of the 40,000-mile National Interstate Highway System. The Department of Defense also considers as equally important the development of circumferential highways connecting industrial and metropolitan areas with the national system of interstate highways.

Supplementing Col. Albaugh's remarks, Mr. Chacey pointed out that the Navy and Air Force are each re-

(Continued on page 18)

HAPPY ACCIDENT—A freak blasting accident which lifted a 75-ft bridge span off its supports on Highway 99 between Los Angeles and Bakersfield, Calif., may have made money for the contractor, A. Teichert & Son. The bridge had to come out anyway and, by dozing a new detour, the contractor is able to work faster on an adjacent highway realigning and widening job. He is expected to finish the job ahead of schedule and pay for the damaged bridge steel out of increased profits.

ARBA hears material allocation needs

(Continued from page 17)

sponsible for advising the Army as to their current and potential access road needs. The Army will review the Department of Defense access road needs, for coordination with the Bureau of Public Roads.

• **Allocation of materials**—Although the BPR has been designated as claimant agency to present requirements for materials needed in all types of highway construction and maintenance—whether the work is done with or without federal aid—it has no authority as yet to allocate materials nor to issue priority ratings to assist in obtaining them. There is reason to believe, however, that such authority will be forthcoming.

If and when that is done, according to A. C. Clark, deputy commissioner, the BPR tentatively plans to delegate to each state highway department the authority and responsibility for making such allocation to individual state, county and city projects within the state. Such action was endorsed by the ARBA in one of its resolutions.

Senator Dennis Chavez, chairman of the Senate Committee on Public Works, also advocated that the BPR have a powerful voice in the allocation of highway construction and maintenance materials. Failure to do so, said he, will result in confused authority and costly bidding by contractors.

Although national defense production is currently taking a large portion of steel production, Senator Chavez believes that the situation in steel and other construction materials will be considerably eased within the next 12 months. And two years hence, said he, at the present rate of defense preparedness, together with current ceilings placed on military personnel and equipment, increased production will not only carry the defense requirements, but also swing back to near present levels on materials.

• **Airports for defense**—Many of our Class IV airports must be improved, since they are an important factor in our national defense program, declared Phillips Moore, director, Office of Airports, CAA—the final speaker at the session devoted to national defense.

In concentrating on improving the larger airports, mostly in the nature of improved lighting and operating facilities, it may seem that the small airports are being neglected. Such is not the case, however, said Moore. Funds will be made available to the smaller cities as the needs for improving their airfields are shown.

• **Military construction equipment**—Something of what the military needs in the way of new types of highway and airport construction equipment was presented by Lt. Col. David G. Hammond, chief, Engineer Research and Development Division, Corps of Engineers.

Requirements for increased speed, mobility and maneuverability have led to the development of rubber-tired equipment of the automotive type. Additional requirements for multi-purpose utility necessitate the development of prime movers interchangeable with scrapers, dump trailers, compaction equipment and machinery trailers—and scrapers interchangeable between rubber-tired and crawler tractors.

In order to avoid non-essential use of machinery trailers, declared Col. Hammond, construction equipment capable of convoy speeds is under development. Although construction operations demand crawler equipment under adverse soil conditions, the mobility and maneuverability of wheeled equipment is considered a supplemental must.

The problem of snow removal is a serious one. Requirements have been established for the complete and continuous removal of a 2-in. per hr snow fall from airport runways. This study involves not only available types of equipment with improved methods and techniques of use, but also the development of special-purpose items, and possibly the redesign of airstrips with some sort of inherent snow removal characteristics.

• **Some new ideas**—Among the most important projects in view, said Col. Hammond, is the requirement for a heavy-duty, rubber-tired tractor dozer and prime mover for construction equipment. It is believed that a tractor of 30,000- to 35,000-lb drawbar pull, capable of a certain degree of dozer operation, and application as a tow tractor for scrapers, dump trailers, compaction equipment, machinery trailers, etc., is a must.

While such a tractor could not replace a crawler tractor under adverse operating conditions, it would provide the increased speed, mobility and maneuverability—under favorable conditions—which are essential to emergency schedules.

Visualized is a four-wheel drive, four-wheel steer, with hydraulic assist, operating speeds up to 25-mph and convoy speeds of 35-mph, with a front-mounted power control unit and bulldozer, and a rear-mounted winch and drawbar.

Additional proposed investigations include further development of airborne equipment in the 16,000-lb class; equipment for amphibious and arctic operations, requiring a combination of low ground pressure and mobility on unstable terrain; disassembly of heavy equipment for air transport; and in the increased capacity field, 2- to 4-cu yd front loaders, 20-ton dump trailers, and 18- to 25-cu yd scrapers.

New ARBA Officers

Paul B. Reinhold, president, Atlas Equipment Corp., Pittsburgh, Pa., is the new president of ARBA, succeeding Enoch R. Needles, consulting engineer, New York City. District vice presidents are: C. M. Noble, Trenton, and A. Diefendorf, Salt Lake City, newly elected; and C. W. Smith, Pensacola, and W. A. Roberts, Milwaukee, both reelected. Jennings Randolph, Washington, D. C. was renamed treasurer.

J. R. Steelman, Milwaukee, is president of the Manufacturers' Division, succeeding R. K. Stiles, Aurora, Ill. J. D. Bonness, Milwaukee, succeeds N. L. Teer, Jr., Durham, N. C., as president of the Contractors' Division. A. J. Thelen, Madison, Wis., is president of the County and Local Roads Division, succeeding H. L. Way, San Bernardino, Calif. and W. A. Collidge, Nashville, succeeds G. M. Shepard, St. Paul, as president of the Municipal Division, which has been combined with the Airport Division.

Wilbur becomes president of BSCE at 103rd meeting

Dr. John B. Wilbur, head of the department of civil and sanitary engineering, Massachusetts Institute of Technology, was elected president of the Boston Society of Civil Engineers this week, succeeding Thomas R. Camp.

Others elected to office during the 103rd annual meeting March 21, were: J. Stuart Crandall, president and chief engineer, Crandall Dry Dock Engineers, Cambridge, vice-president; Robert W. Moir, associate civil engineer, construction division, Metropolitan District Commission, Boston, secretary; Charles O. Baird, Jr., professor of civil engineering, Northwestern University, Boston, treasurer.

Directors elected were Dean Peabody, Jr., professor of architecture, Harvard University, and John G. W. Thomas, engineer, Proprietors of Locks and Canals, Lowell.

Karl R. Kennison, engineering consultant and former chief engineer of the Metropolitan District Commission, was made an honorary member of the Society. Certificates of honor were presented to 26 past-presidents.

CONSTRUCTION BUSINESS

Labor's fringe benefits increasing

Construction labor's huge strides of last year in writing benefit clauses into its union agreements can be expected to gather momentum in 1951 since the wage ceiling imposed by the Economic Stabilization Administrator left several escape hatches open that permit fringe benefits.

A review by ENGINEERING NEWS-RECORD of wage rates in more than 60 cities finds these benefits in construction labor agreements as of Feb. 1, 1951:

WELFARE FUND

• **Boston, Mass.,** 4%—roofers, waterproofers, sheet metal workers; 10¢ effective 4/51—plumbers.

• **New York, N. Y.,** 3%—carpenters, bricklayers, both structural and reinforcing iron workers, and sheet metal workers, common labor, plasterers, mosaic and terrazzo, cement finishers, lathers, glaziers, plumbers, steamfitters, roofers, waterproofers, welders, hoisting engineers, shovel operators; 4%—mason's helper, painters; 4% welfare and pension—electricians.

• **Newark, N. J.,** 3%—carpenters, bricklayers, plasterers, cement finishers, plumbers, steamfitters, both structural and reinforcing iron workers (effective 4/51); 10¢—painters, hoisting engineers, tractor operators, shovel operators.

• **Trenton, N. J.,** 9¢—iron workers.

• **Philadelphia, Pa.,** 2%—bricklayers; 5¢ painters; 7½¢—plasterers, lathers, plumbers, sheet metal workers; 9¢—iron workers.

• **Chicago, Ill.,** 5¢—common labor; 7½¢—bricklayers.

• **St. Louis, Mo.,** 5%—pipe fitters; 10¢—cement finishers and foremen to 5/52; $1/straight time day—plumbers and foremen to 6/15/55.

PENSION FUND

• **New York, N. Y.,** 2%—mason's helpers, plumbers; 3%—reinf. iron workers, mosaic and terrazzo, cement finishers, lathers, glaziers, steamfitters, roofers, waterproofers, sheet metal workers; 20¢ per hr—bricklayers, plasterers.

• **Newark, N. J.,** 1%—electricians; 11¢—painters.

• **Helena, Mont.,** 1%—electricians.

PAID HOLIDAYS

• **New York, N. Y.**—6 each—carpenters, structural iron workers, common labor, electricians, welders, hoisting engineers, shovel operators.

VACATION ALLOWANCE

• **St. Louis, Mo.,** 3% vacation stamps—bricklayers, and foremen, stone masons and foremen; 4%—electricians.

• **Los Angeles and San Diego, Calif.,** 1 week paid vacation—glaziers.

OTHER BENEFITS

• **New York, N. Y.,** 4% hospital, health—stone masons, tile layers (5% eff 7/5/51 for both); 8%—plumbers in Manhattan and Bronx.

• **Cleveland, Ohio,** 5¢/hr tool replacement—carpenters.

COST OF LIVING ESCALATORS

• **New York, N. Y.**—in most trades.

• **Kansas City, Mo.**—negotiating cost of living adjustments although most contracts have 1 yr to run.

• **Phoenix, Ariz.**—contracts eligible for reopening in October on cost of living basis.

• **Portland, Ore.**—cement finishers, plumbers, steamfitters.

Construction backlog grows

Engineering construction, proposed in February and not yet put under contract, increased sharply to $1,457 millions. This shoved the measured backlog up to a new high of $54,638,663,000. This February increase of almost $1.5 billion followed a $1-billion increase in January, as reported by ENGINEERING NEWS-RECORD.

These 1951 monthly increases average $1.25 billion and compare with an average monthly rise of $404 million during 1950.

These classes of construction made the big February additions to the backlog: industrial buildings, $433 million; public unclassified, $373 million; streets and roads, $168 million; public building, including housing, $162 million; commercial building, including private mass housing, $126 million; private unclassified, $72 million; earthwork, waterways, $61 million; bridges, $25 million; sewerage and waste disposal, $29 million; waterworks, $10 million.

Canada's backlog went up $349 million in February to $9,641,242,000. Canada's industrial building backlog is $1.15 billion.

The industrial building backlog in the United States is now up to $6,849,529,000, the highest it has been. Commercial building and mass housing backlog is at a new high, too, $7,124,406,000.

Who gets fast tax write-off and how much

To date owners of some 500 different production facilities have received certificates of necessity permitting accelerated depreciation. But 100% fast, 5-year, write-off is available to only a few, and the amounts that various companies and types of plants can get has only just been disclosed.

The following pattern, laid down by W. Stuart Symington, chief of the National Security Resources Board is being followed by Gen. Wm. H. Harrison, Defense Production Administrator who now is responsible for granting the certificates of defense need. This allows:

100% for special purpose machine tools for production of military products exclusively—also finishing units for production of alkylates and aromatics from petroleum.

90% for general purpose machine tools, including process heating equipment—also supersonic wind tunnel—also Lake ore carrier (converted steamship).

85% for blast furnaces; iron ore handling and processing facilities; coke ovens; special building for tank manufacture; conventional building for manufacture of guided missiles in locations suggesting doubtful post emergency utility; petroleum storage in certain areas; magnesium rolling mills; refractories; ferro-alloy smelting facilities.

80% for alumina and aluminum reduction plant; bauxite; plant for processing of blood plasma; freight cars; inland waterway barges for petroleum and raw materials for steelmaking; Lake ore carrier (conventional).

75% for basic petroleum refining; steelmaking furnaces; blooming mills and soaking pits; scrap preparation and handling facilities; plants for production of superphosphate in which Atomic Energy Comm. is interested; conventional factory buildings and extensions in industrial locations.

70% for finishing facilities for high alloy steels; diesel powered tugs and tow boats; cement plants in certain areas.

65% for diesel electric locomotives; wood pulp facilities of certain types; cotton gins in certain locations.

60% for steel plant finishing facilities.

50% for high tenacity rayons; paper mills of certain types.

These industries have received 5-year amortization certificates in the ratios as shown:

Certificates of necessity for fast tax amortization by industry, As of March 2, 1951

Industry	No. certs. appr.	$ value of facil. (millions)	% of cost Given 5-yr Amort. #
Iron and steel	118	$1,900	60-85%
Railroads	34	244	65-80
Water transp'n.	26	88	80-90
Aircraft	81	126	75-90
Refractories	39	43	85
Magnesium	9	28	85
Autos and tanks	20	65	75-85
Electronics	17	25	75
Fibrous glass	4	9	75
Munitions	16	30	Up to 100
Aluminum	4	400	80
Cement	5	21	70
Paper & lumber	19	196	50-65
Fuels	25	98	75-100
All others	76	116	50-100
Total	**493**	**$3,045.7**	**74 % Aver.**

Since Mar. 2, 313 more certificates of necessity for tax benefits have been issued for expansion to cost an estimated $1.183 billion.

BIDS AND BIDDERS

(Major project news received after Construction Reports, page 50, went to press.)

Ross Power House—Guy F. Atkinson Co. and Associates, San Francisco, Calif., have been awarded a $14,688,030 contract to construct the Ross Power House, for the City of Seattle, Wash. E. R. Hoffman is city light superintendent.

Cracking unit—Phillips Petroleum Co., Bartlesville, Okla., plans catalytic cracking plant at Woods Cross, Utah. Estimated cost is $10,000,000.

Soldiers Home—George Hyman Construction Co., Washington, D. C., was low bidder at $7,200,000 for constructing domiciliary building for the Soldiers Home in Washington, D. C. Bids were opened March 15 by the U. S. Engineers in Washington.

Military installation—A $5,053,970 contract has been awarded to Morrison-Knudsen Co., Inc., Boise, Idaho and Peter Kiewit Sons Co., Seattle, Wash., to build military installation on St. Lawrence Island in Alaska, by the U. S. Engineers, Anchorage, Alaska.

Power station—Iowa Southern Utilities Co., Centerville, Ia. has plants under for $8,000,000 power station near Eddyville, Ia. Edward de Rivera, of Pioneer Service & Engineering Co., Chicago, Ill., is engineer.

Hospital—Dickie Construction Co., Ltd., Toronto, Ont., has been awarded contract to construct hospital, at St. Thomas, Ont., for the St. Thomas-Elgin Hospital Board, St. Thomas. Estimated cost is $3,000,000. Govan, Ferguson, Lindsay, Kommiker, Maw, Langley & Keenleyside, Toronto, are architects.

Air Force base — U. S. Engineers, Omaha, Neb., plan expansion of Rapid City Air Force Base, near Weaver, S. D., to cost about $8,548,000.

Catalytic cracking plant—British American Oil Co., Ltd., Toronto, Ont., plans catalytic cracking plant near Vancouver, B. C. Estimated cost is $10,000,000.

Parts warehouse—The Austin Company, Chicago, Ill., will design and construct a $2,000,000 parts warehouse in Chicago, for the Ford Motor Co., Dearborn, Mich.

Housing—Bids will be opened April 27, by the Public Works Division, 13th Naval District, Seattle, Wash., to select a sponsor to construct, finance and manage housing for personnel at Naval Air Base, Whidbey Island, Wash. Cost will be about $2,700,000. Stuart & Durham, Seattle, are architects.

Power house—Russ Mitchell Inc. and Bruce Construction Co., Houston, Tex. were lowest of ten bidders at $2,198,313 for constructing power house, switchyard and other facilities at Whitney Dam and Reservoir, Brazos River, Texas when the U. S. Engineers, Fort Worth, opened bids March 15.

Housing—Daniel Construction Co., Greenville, S. C., offered a low bid of $2,680,000 for building housing project at Greenville, when the City Housing Authority opened bids March 18. Beacham Associates, Greenville, are architects.

Cement mill—Medusa Portland Cement Co., Cleveland, O., awarded contract to erect a cement mill addition at Silica, near Toledo, O., to A. Bentley & Sons Co., Toledo. Cost will be about $2,500,000.

Radar manufacturing plant—Martin Cerel, Natick, Mass., plans to construct an 8-story plant to manufacture radar equipment. The building will be occupied by Electric Inc., Roxbury, Mass.

Power plant and distribution lines—Omaha Public Power District, Omaha, will erect by own forces a main power plant, power cables and will extend and improve distribution system in Omaha. Total cost of projects will be about $3,800,000.

Housing—M. B. Kahn Construction Co., Columbia, S. C., was low bidder at $2,552,000 for constructing housing when the City of Columbia, opened bids March 14. James B. Urquhart, Columbia, is architect.

Grain elevator—Klug & Smith, Milwaukee, will build a grain elevator for the Joseph Schlitz Brewing Co., Milwaukee. Cost is about $2,000,000. Brinner, Laws, Gemeny & Odean, Chicago, are engineers.

Silica refractories plant—General Refractories Co., Philadelphia, Pa., plans a $3,000,000 silica refractories plant at Morrisville, Pa. Frederick Miller is engineer for owner.

Paper mill—Bruce Falls Power & Paper Co., Ltd., Kapuskasing, Ont., plans to expand paper plant at Kapuskasing. Cost will be about $5,000,000.

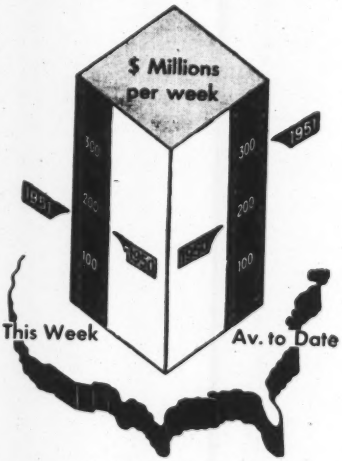
COSTS AND VOLUME

ENR INDEX NUMBERS

Index Base = 100		1913	1926	1949
Constr. Cost.	Mar. '51	537.90	258.57	112.76
Bldg. Cost.	Mar. '51	397.99	215.14	113.13
Volume	Feb. '51	653	265	189

Activity This Week

As reported to ENR (in millions of dollars)



Amount of contracts let

	Week of Mar. 22 '51	Cumulative 12 wks 1951	1950	% chge
Federal	$16.7	$447.9	$383.2	+24
State & Mun.	83.3	829.3	645.0	+29
Total Public	$100.0	$1,276.3	$1,028.2	+24
Total Private	59.8	2,253.2	1,308.0	+72
U. S. Total	$159.8	$3,529.5	$2,336.2	+51

Contracts by type of work

	This Week	Cumulative 12 wks 1951	1950	% chge
Waterworks	$8.2	$50.4	$62.2	−19
Sewerage	5.8	74.9	52.8	+42
Bridges	4.1	62.7	72.4	−13
Highways	10.2	203.2	198.9	+2
Earthwork, Waterways	7.7	73.3	72.4	+1
Buildings:				
Public	49.5	560.1	449.2	+25
Housg., pub.	7.0	155.2	37.1	+318
Housg., priv.	24.4	488.1	749.7	−35
Commercial	11.2	174.6	221.7	−21
Industrial	22.1	1,398.1	224.2	+524
Unclassified	9.6	288.9	195.6	+48

NOTE: Minimum size projects included are: Waterworks and waterway projects, $34,000; other public works, $60,000; industrial buildings, $82,000; other buildings, $300,000.

New capital for construction

	1951	Cumulative 12 wks 1950	% chge
Corporate Securities	$488.3	$436.7	+12
Fed. loans, Priv. Constr.	73.4	0	0
State and Mun.:			
Excl. housing	479.3	371.9	+29
Housing	162.8	161.3	−1
Fed. Aid, non-fed. constr.	0	0	0
Total Non-Federal	$1,203.8	$972.9	+24
FEDERAL	2,602.4	0	0
Total Capital	$3,806.2	$972.9	+291

Mississippi Valley state highway work keyed to steel and manpower supplies

Accent is on widening and resurfacing of old pavements, while new construction this year could exceed last year's programs

Highway departments in the upper Mississippi Valley are in a dilemma. Their pavement-rehabilitation programs must be stepped up sharply—due both to an unusually severe winter and the rapid deterioration of many miles of old pavement built 20 to 30 years ago.

At the same time the confusion resulting from the uncertainty of when and how much steel and other critical materials will be allotted for highway work, threatens the implementation and orderly prosecution of this year's construction programs.

These problems—plus the threat of manpower shortages, the need for increased gas taxes and more stringent control of truck weights and sizes—occupied the full attention of the Mississippi Valley Conference of State Highway Departments at its annual meeting in Chicago, Mar. 8-10.

P. H. Daniells, assistant chief engineer, Missouri State Highway Department, was elected president of the conference, succeeding H. E. Surman, engineer of design, Illinois State Highway Department. G. H. Bittle, assistant chief engineer, Oklahoma State Highway Department, was named secretary-treasurer.

• **Big 1951 program, if?**—Reports from 13 of the 14 member states indicated that a total of $409 million of construction, reconstruction and resurfacing could be placed under contract this year, as compared with $398 million last year.

Several states reported large pavement widening and resurfacing programs for this year; Indiana heading the list with a proposed $13,000,000 worth.

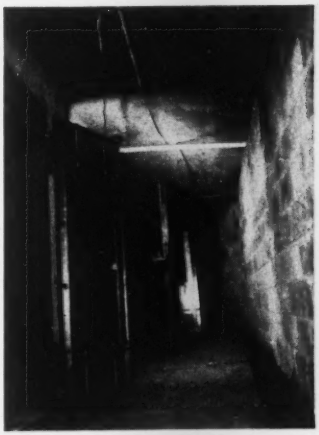
• **Significant highway trends**—Technical sessions of the three-day conference disclosed the following trends in methods of highway design and construction:

Should reinforcing steel become more critical, there will be more unreinforced concrete pavement construction, with or without bituminous surfacing . . . also more flexible-pavement construction . . . construction costs are still rising, with structure costs advancing more rapidly than earthwork.

• **The outlook for steel**—Latest developments in the critical steel situation in highway construction were presented by H. H. Hale, executive secretary, AASHO. While he could give no assurance that adequate supplies of steel would be allocated for highway construction, Hale declared that efforts were being made to get the NPA to give bulk allotments of steel for highway construction direct to the Bureau of Public Roads, for allocation to state highway construction.

This would simplify greatly the securing of priority for construction over the methods used during the last war when individual project priorities were needed. Some assurance has been given the NPA that such bulk allotments may be made, and that they will become effective by July 1.

• **More teamwork needed**—All segments of the roadbuilding industry should bury their differences for at least the duration of the present national emergency and unite in a concerted effort to keep highway improvements in step with our rapidly growing defense requirements and industrial expansion, according to the observation of Allen Wagner, director of public relations, American Road Builders' Association.



BACK TO THE CAVES—Vaults with steel doors lead off a corridor 200 ft below the ground inside an abandoned iron ore mine near Linlithgo, N. Y. Herman Knaust, the owner, is spending more than $500,000 on air-conditioned, humidity-controlled vaults that will be proof against fire, water, radiation, light and bomb damage. Firms interested in super-safe storage of valuable records and art objects are expected to rent the facilities—located about 125 miles from New York City. (Wide World photo)

States plan road priority schedules

Three states faced with supply problems during the emergency defense period and a heavy burden of needed repairs plan priority programs of improvement designed to put first things first.

The Virginia, Ohio, and Pennsylvania highway departments are looking toward setting up surveys to determine standards for priority on road and highway repair.

Virginia has already undertaken a special study to determine the minimum requirements of men, equipment and material needed to keep its principal highways in service during the next few years.

The resolution adopted by the Virginia State Highway Commission has requested the Automotive Safety Foundation to survey its needs in cooperation with the U. S. Bureau of Public Roads and the Defense Dept.

Four basic objectives of the proposed study may be outlined:

1. To establish a priority program of highway improvements based upon measured relative importance.

2. To develop minimum improvements necessary to sustain transportation during the emergency period as well as for the next ten years (base period for the study).

3. To develop cost estimates for stop-gap improvements needed to keep roads in service.

4. To develop a schedule of minimum equipment, materials, and manpower needs related to requirements for the base ten years.

Staff members of the Automotive Safety Foundation are available for the job which has financial backing as a federal aid planning project.

Similar work has been done for the year immediately ahead in Ohio.

There priorities will go to heavily traveled main highways, highways requiring extensive maintenance, and those having structural failures in the pavement.

The Ohio picture has been complicated by an estimated $4-million-worth of winter damage. A "work on Sunday" order has been issued to speed emergency repairs.

According to Highway Director T. J. Kauer, the state cannot hope to repair all the weather-battered roads.

In Pennsylvania the state highway department, influenced by defense considerations, is considering undertaking similar studies leading to a road maintenance priority system.

Five state tollway plans move forward

Developments in five states came to a head last week affecting $481 million of tollway and turnpike construction.

Big development was the decision of the Ohio Supreme Court supporting the legality of the proposed $300 million Ohio toll highway and the Ohio Turnpike Commission. (ENR Nov. 2, 1950, p. 25).

The vote was 5 to 1, allowing Highway Director Theodore J. Kauer to hire engineering consultants for the tollway, and the Turnpike Commission to issue revenue bonds.

• **Other moves**—Meanwhile, West Virginia has announced the route of the first section of its proposed $100 million tollway, and in Pennsylvania the state legislature has before it extension of the Pennsylvania Turnpike system from King-of-Prussia, near Philadelphia, east toward the Delaware River. This includes the building of a bridge linking the extension with the New Jersey Turnpike near Bordentown.

Other developments on the turnpike front also include announcement by the Oklahoma Turnpike Authority of plans to have under contract by July 1 of this year all grading, drainage and structure work on the Oklahoma City-Tulsa toll road.

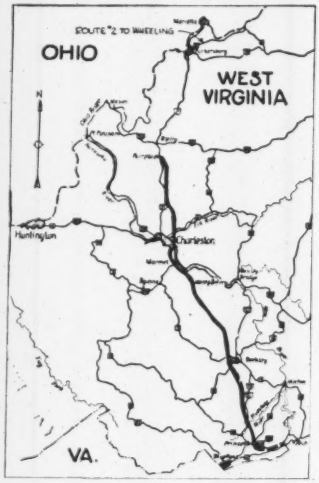
Part and parcel of this general overall turnpike interest is the signing by Governor Henry F. Schricker of a bill creating the four-member bipartisan Indiana Toll Road Commission to study feasibility of building and operating toll roads in that state.

• **In Ohio** the decision of the state Supreme Court opened the way for legislative action which to-date has been held up awaiting confirmation of the constitutionality of the turnpike commission and its activities.

Appointments made by Governor Lausche have not been confirmed in the state Senate which must now decide whether James W. Shocknessy of Columbus will be chairman of the Turnpike Commission and O. L. Teagarden of Oak Harbor, J. Gordon McKay of Cleveland, and Murray Seasongood of Cincinnati, commission members.

The issue of constitutionality was raised by State Auditor Joseph T. Ferguson last fall in refusing to honor vouchers given several consulting engineering firms by the commission. These vouchers the court has ordered paid. Authority to extend funds for study and surveys for the project has been granted by this act. The commisison has also been authorized to issue bonds and enter into contracts by the decision.

• **In West Virginia** the tentative route announced by the West Virginia Turnpike Commission for the 120-mile proposed West Virginia turnpike would start at a southerly point near Princeton in Mercer County and extend northwesterly west of Beckley and cross the Kanawha River in the east end of the city of Charleston and the Elk River north of Charleston. (See map)



Route of proposed West Virginia Turnpike.

• **Pennsylvania's enabling legislation** will, when passed, authorize the construction of another 35 to 45 miles of the turnpike at a cost exceeding $50 million. The turnpike system is also authorized "to acquire the use of a bridge" over the Delaware as an alternative to building one. (ENR March 15, p. 30)

• **Specific dates** for those interested in the Oklahoma tollway were set by H. E. Bailey, manager of the Turnpike Authority: April 3, or April 10, depending on whether the state highway commission selects either of those dates. (ENR Jan. 11, p. 30)

"We expect to continue lettings every two weeks or 30 days and to get all of the 88 miles of grading and drainage and all of the structures under contract by July 1," Bailey said. "The paving will come later."

No decision has as yet been made on the type of paving to be used.

• **Back home in Indiana**—In signing a series of bills Governor Schricker of Indiana has authorized the Indiana Toll Bridge Commission to build toll roads and highways and provided for issuance of revenue bonds of up to 30 years duration to finance such projects.

Highway officials fight for defense recognition

The Association of Highway Officials of the North Atlantic States in resolutions adopted at Atlantic City, N. J., urges a freeze on further federal gas taxation, allocation of critical materials for highways essential to the defense program, and recognition of the importance of highways in the federal departments of defense.

The tax proposal of the association is in contrast with the position of the Secretary of the Treasury's recommendation to Congress that the Federal gasoline tax be increased from 1½ to 3 cents.

In recommending allocation of critical materials to supply vital highways, association members had in mind the Interstate System of Highways as vital links to defense efforts throughout the country. In connection with its resolutions, highways officials also backed future federal-aid highway programs to help alleviate highway and road congestion.

Dewey signs truck tax

Starting Oct. 1 a weight distance tax on trucks of 18,001 pounds or more loaded capacity which is expected to net $6,000,000 in new revenue during the next fiscal year will take effect in New York State.

In signing the bill, Gov. Thomas E. Dewey said: "The bill is a notable advance in collecting a fairer share of the cost of maintaining the highway system from those who use it most and do the greatest damage."

For the schedule of rates see ENR, Feb. 22, page 30.

Equipment marketers ask nation-wide inventory

A nation-wide survey of construction machinery and trained operating personnel to determine types and ownership of available construction equipment—and location of trained operators—is requested in a resolution passed recently by the National Affairs Committee of the Associated Equipment Distributors.

Information gathered in the proposed survey would be indexed and made available to authorized civil defense authorities on the national, state and municipal levels of government.

Contemplated wide-scale purchases of construction equipment by all levels of government are deemed uncalled for by the AED. The organization contends that these purchases can lead only to large stockpiles of idle machinery which is needed for military and domestic construction.

Lehigh Portland to make Florida clam shell cement

Coquina shells, rich in calcium carbonate, when mixed with low-silica clays, will become the raw material for portland cement in a new plant of the Lehigh Portland Cement Co., to be located on the east coast of Florida.

Construction contracts have been let for an $11-million plant, (capacity 1,400,000 barrels per year) to the Walsh Construction Co., Davenport, Iowa, and the Duval Engineering & Contracting Co., Jacksonville, Fla. Project engineers are F. L. Smidth & Co., New York.

The new plant will be located between Bunnell and Flagler Beach, about 70 miles south of Jacksonville, along a deposit of coquina said to be the most extensive ever found in the U. S. The shells are massed in three parallel ridges, each six miles long, from 800 to 1000 ft wide and about 50 ft deep.

The 10,000-acre property acquired by Lehigh is adjacent to the Florida Intracoastal Canal. A rail spur will be extended from Bunnell. Thus production may be shipped either by water or rail.

The company also plans to erect storage silos and a packhouse on a 5½-acre dock site along the St. John's River in Jacksonville.

Chicago approves 56 new schools at $50 million

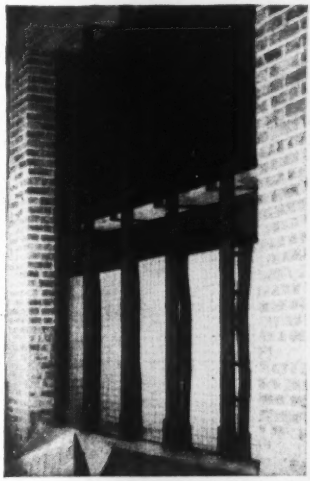
Chicago's Board of Education has approved a program for the construction of 56 new schools or additions in the next five years at a cost of $50 million. This program would provide 35,000 more classroom seats.

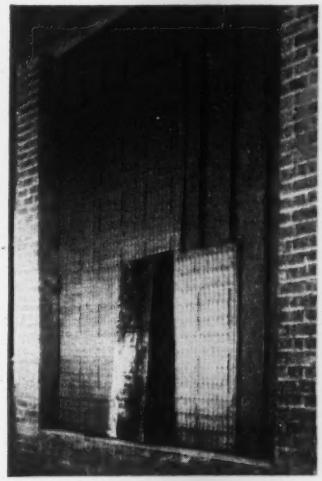
Construction is to be financed with two bond issues of $25 million each. The state legislature's approval is necessary before the bonds can be issued and the board will seek it immediately. Work on the first building will start next January if the financing program is approved.

NYC building starts drop

New York City's $47,000,000 of building construction starts for the months of January and February show a decline of 42% from the corresponding months of last year, according to preliminary studies of the Bureau of Labor Statistics released by its regional office.

The decline was in residential construction, especially privately financed construction which was down nearly $10,000,000 to $13,400,000 as against $23,100,000 in 1950.





PERLITE WALL IN THE MAKING—Left: Paper-backed wire mesh and steel frame to receive concrete. Right: Aluminum foil-backed wire fabric clips to furring channels.

Light perlite curtain wall saves cost

Fire tests made by the Underwriters' Laboratories, Inc., on a test panel of 6-in. thick perlite concrete and plaster indicated that a curtain wall of this construction would have a 4-hr fire resistance.

Inasmuch as the Aluminum Company of America was one of the sponsors of the test—together with McNulty Brothers, lathing and plastering contractors of Chicago, and Great Lakes Carbon Corp., producers of perlite aggregate—it seems likely that this type of wall may be used for the Alcoa office building in Pittsburgh, Pa.

The wall consists of an inner and outer section. The outer section is composed of 4-in. thick perlite concrete applied on a paper-backed wire mesh and encasing steel-frame members to which an exterior facing will be attached.

The inner section is channel-furred, consisting of a 1-in. air space and 1 in. of perlite gypsum plaster applied on a paper and aluminum-foil-backed wire mesh.

The construction technique, which may result in a weight reduction of 75% over conventional walls and a cost saving of at least 10%, was worked out by McNulty Brothers and Bruce A. Gordon Co., engineers of Chicago.

Cigarette tax urged to build college in N. J.

A proposed $25,000,000 state Medical College and Dental School for New Jersey may be financed from an added penny-a-pack tax on cigarettes.

This method of raising construction money was favored recently by state legislative leaders and Gov. Alfred E. Driscoll in executive conference.

Boosting the state tax from 3 to 4 cents a pack would bring in an added $5,000,000 yearly, they estimated. This would be enough to cover bond interest and principal payments on the college, as well as operating expenses. If the plan is approved by the legislature the question of a $25,000,000 bond issue will go before New Jersey voters in November.

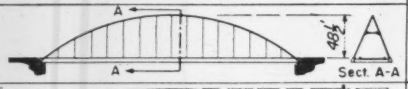
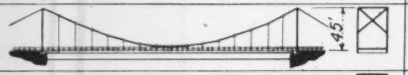
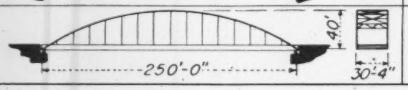
Early start planned for $14-million college job

Immediate construction of five buildings is planned by Manhattanville College of the Sacred Heart, which is moving from New York City to suburban Harrison, N. Y.

Cost of the five structures is estimated at $7 million. Soon afterward, four more buildings—also costing $7 million—are to be erected.

The college has plans drawn by Eggers & Higgins, New York, for a dormitory for 250 students, a library, a building for science, music and other academic uses, a dining hall and a power plant.

Another dormitory, chapel, gymnasium and auditorium are to be constructed later.

	BRIDGE TYPE	ELEVATIONS	Structural steel: Main structure	Bracing	Flooring	Miscellaneous	Total Steel	Weight comparison with welded design (Percentage)
ALL-WELDED	Tied arch ribs tilted in and splayed at the end		127.3	2.6	97.2	2.2	229.3	100
ALL-RIVETED	Simple truss		160.9	30.5	79.6	8.0	279.0	122
ALL-RIVETED	Eyebar suspension bridge		173.2	10.0	74.1	10.0	267.2	116
ALL-RIVETED	2-Hinged-Braced arch rib		113.4	31.1	87.6	8.0	240.1	105
ALL-RIVETED	2-Hinged Solid arch rib		163.0	20.0	87.6	8.0	278.6	122
ALL-RIVETED	Tied arch Slender rib		150.7	22.5	74.1	3.0	250.3	109

COMPARATIVE WEIGHTS (TONS)

WELDING SAVES STEEL—Five conventional all-riveted designs employing structural steel only would require from 5% to 22% more steel than the all-welded design that won third award in the contest, sponsored by the James F. Lincoln Arc Welding Foundation.

Welded bridges of the future—less steel

DESIGNERS OF WELDED BRIDGES have considerable latitude in their selection of structural shapes and make-up of truss members. They are not hampered as much by fabricating requirements nor limited to the rolled shapes available as are the designers of riveted structures.

These points were apparent in several designs submitted in the James F. Lincoln Arc Welding Foundation contest for a 250-ft span all-welded highway bridge, which was concluded last fall (ENR Nov. 16, 1950, p. 26).

Although the contest was called the "1950 Welded Bridges of the Future Program," this could be a misnomer. Many of the designs embody such cost-cutting features and such practical approaches to developing an economical all-welded bridge that the actual adoption of some may occur sooner than expected.

Primary objectives of the program were to promote the building of better bridges for less money and with less steel, by using all-welded construction instead of riveting. The program also sought to stimulate the contestants' ingenuity and originality in developing new concepts of design, new structural shapes, and new methods of fabrication and erection.

Rules of the contest called for all designs to be for a 250-ft span, all-welded through-type highway bridge, with a 26-ft roadway carrying two lanes of H-20 live load. Design specifications included the AASHO "Standard Specifications for Highway Bridges," 1949 edition; and the American Welding Society's "Standard Specifications for Welded Highway and Railway Bridges," 1947 edition. Strict adherence to these specifications however, was not mandatory.

First prize of $5,000 went to J. H. Jennison, of Pasadena, Calif. (ENR Nov. 16, 1950, p. 26); second prize to Ernest Amstutz, Zurich, Switzerland; and third prize to Prof. T. C. Kavanagh, Pennsylvania State College. Ten honorable mention awards, each worth $200, were divided among three engineers from foreign countries and seven U. S. designers.

Needless to say, the sum total of the efforts of the designers produced almost every kind of a bridge consistent with the length of span involved.

While space doesn't permit a comparative analysis of the merits of the individual designs, the following composite description of several of the designs is aimed at presenting some of their outstanding features:

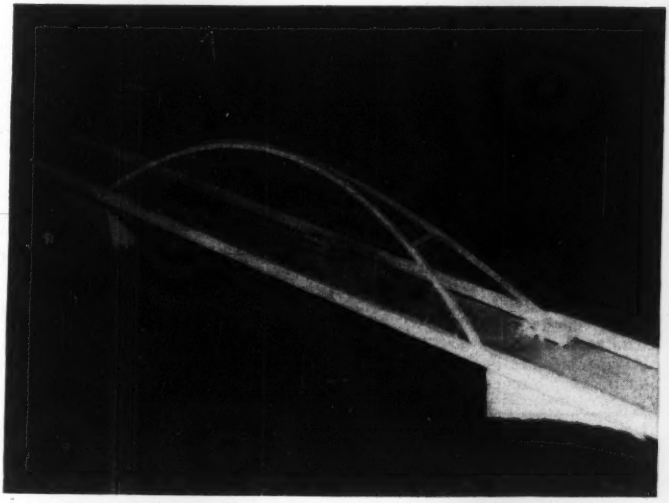
• **Arch types are popular**—The general type of structure chosen by the majority of the contestants was the through arch, either "tied," "fixed," "two-hinged" or "three-hinged." Some designs, however, were Pratt trusses, Vierendeel trusses, and Warren trusses with or without verticals.

Many designers worked with conventional wide-flange rolled beams and other available structural shapes; others specified new shapes not presently rolled by the steel mills. In many designs, the accent was on simplicity of fabrication and erection, as well as architectural beauty and weight-saving measures.

Quite a few designs took advantage of the weight-saving and structural qualities of tubular pipe as truss verticals and diagonals, and top lateral bracing; also as arch hangers. At least one design—that of a Pratt-type truss—used large-diameter steel pipe in the top and bottom chords, with smaller pipe for web members, top laterals and portal bracing.

• **Esthetic beauty**—Several designers paid special attention to the esthetic beauty of their bridges. This was more prevalent in the arch-type designs, including both tied and hinged arches. In these designs the overhead structure was held to a minimum, consistent with functional design. This doesn't appear to be a drastic new departure in bridge design, but rather a continuing trend of fairly long-standing.

Duplication of shop-fabrication and simplicity of erection were emphasized in several designs. Shop-fabricated members were equipped with fitting-up attachments so the several members can be bolted together in the



BY JOINING THE RIBS of a tied-arch span together at the center and splaying them at the ends, one designer eliminated over 80% of the top bracing.

field and held in position during welding.

• **New shapes proposed**—As might be expected some designs specified unusual shapes not presently rolled, or special built-up members requiring considerable fabrication. A few examples include: Special wide-flange I-beam sections made up of two heavy T-sections with the stems welded to a web plate. This scheme presumes that T-sections will be rolled considerably outside of present limits; extreme sizes running to 24-in. flanges.

To satisfy the requirements of one tied-arch design, it would be necessary to roll four new structural shapes differing markedly from any now available or proposed for use in both the floor steel and arch ribs. Some designers proposed extra large tees for chord members of trusses that permit elimination of gusset plates.

One curved chord Warren truss used closed, hollow square box sections for top and bottom chords. They would be made by welding equal-legged angles together. In addition, the chord sections are rotated 45 deg from the usual position forming what the designer calls a "diamond section." For the longer and heavier truss members, the author proposes new angle sizes up to 18x18x1¼-in.

• **Roadway design**—Many roadway floor designs also reflected the designers' ingenuity, when not hampered by too much precedent. When added transverse strength was needed, as in the arch spans, the designers utilized conventional reinforced concrete construction. But where weight-saving could be accomplished they used other expedients.

One Warren truss span, without verticals, used a prestressed concrete slab 7-in. thick at the curbs, 10 in. at the center line of roadway, and surfaced with asphalt. Prestressing would be done by cables that pass through the wide-flange beams forming the bottom chord. No stringers, floor beams or bottom lateral bracing are needed in this design.

Prestressed roadway slabs as thin as 4-in. were used by some designers, supported on conventional stringers and floor beams. One bold design used a ½-in. steel plate floor on open box-shaped stringers and surfaced with ⅜-in. of rubber asphalt.

Other designs employed steel-grid flooring on stringers and floor beams. Some grid flooring was filled with light-weight concrete and surfaced with asphalt. Other grid flooring was left open.

Precast concrete slabs were included in some designs, together with an asphalt wearing surface. Another design called for the floor to be 3½-in. corrugated metal plate, filled and surfaced with asphalt. Stringer spacing in this design is 3 ft 3 in.

• **Continuous stringers**—Considerable weight-saving was effected in some designs by giving the stringers continuity by butt-welding their flanges to the webs of the floor beams.

• **Economy by welding**—In the tied-arch type, several noteworthy innovations were contained in a 250-ft through-span design submitted by Mr. Kavanagh. Of particular note is the fact that this all-welded bridge contained less tonnage of steel and was estimated to cost less than five comparative designs of all-riveted trusses. Weight comparisons of the six bridges are shown in the illustration.

Two striking characteristics of Kavanagh's design are the treatment of the arches, and the floor system. Arch ribs are not vertical as per conventional practice but are inclined inward. They are joined together as a common member for a 40-ft length at the center of the span and splayed at the ends. The flexible-type arch, of course, requires relatively heavy tie-girders, but the above structural arrangement eliminates from 80% to 90% of the top bracing (only two top chord struts are used; at about the ⅛-span).

The designer claims there will be no reduction in rigidity of the arches, since they are arched in plan. And they brace each other directly without relying upon the interaction with a secondary (bracing) system.

The ribs are box-shaped, containing a 24-in. cover plate and two 22-in. side plates battened along their bottom edges. Panel lengths are 15 ft 7½-in. Vertical hangers may be either 1½-in. galvanized wire rope or a small built-up H-section of three 6-in. plates.

Tie girders are built-up plate girders, using a 72x½-in. web plate, one 16-in. flange plate top and bottom, and plate stiffeners.

• **Gridwork flooring**—Instead of using a conventional floor beam and stringer arrangement, the concrete roadway and sidewalks are carried on a gridwork of 21-in. wide-flange beams running diagonally over two hanger panels. Floor beams are notched half-depth at their intersections, erected, and notches welded shut.

Spiral shear connectors welded to the top flange of the floor beams and embedded in the concrete slab, make the slab and beams act as a composite unit. By this gridwork arrangement, the maximum bending moment in any of the diagonal floor beams, from a two-truck loading, is reduced nearly 70% of what it would be for a conventional transverse floor beam carrying longitudinal stringers. The gridwork arrangement also permits the concrete slab to be designed as a two-way slab, according to Mr. Kavanagh.

Designs submitted in the contest are being edited in book form by James G. Clark, professor of civil engineering, University of Illinois, to be published by the James F. Lincoln Arc Welding Foundation.

Israel banks on its new immigrants

Waldo G. Bowman
Editor

JERUSALEM, Feb. 14, 1951—Refugees are accepted with reluctance in most countries of the world. In Israel they are welcomed with open arms, the problems they create embraced with thankfulness and enthusiasm. For this new country—it is less than three years old—has staked its future on more population and the increased national product that these additional workers can assure.

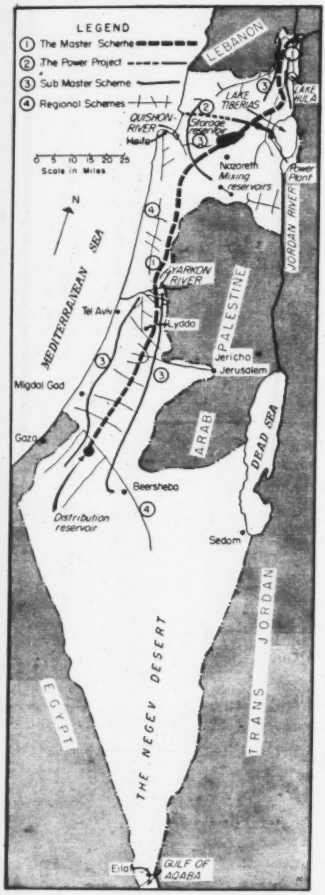
Joined by racial and religious ties to the immigrants that it seeks, and thus spurred by a burning desire to relieve their often-sorry plight, Israel nevertheless is attempting to mix its mercy with realistic economics and engineering. It is principally with the engineering that we are concerned here, although economics is inextricably bound up with it. Unless the engineering is soundly conceived and executed, the economics—enough food to eat and some to export, new industries to provide more jobs making products both for home consumption and to be sold abroad, enough housing for shelter, sufficient roads for transport—simply will not jell.

One can go farther and say that there can be neither soundness to the economics nor substance to the engineering unless the country can attract capital investment and loans from abroad. Fortunately Israel has enjoyed fair success in this respect, though with about 4,000 new settlers arriving weekly the needs for additional capital grow by leaps and bounds. Some idea of the magnitude of the problem may be gained from the fact that the country's population of 1,400,000 is just about double what it was in May, 1948, when its statehood was achieved.

• **Investment capital needed**—Philanthropy played a major role in the earlier days of Jewish settlement of Palestine, but this will no longer suffice. Accordingly, Israel has sought loans wherever she can, and one of the largest has come from our Export-Import Bank, which granted a $100 million credit in January, 1949. Subsequently Israel has drawn on this as follows: $35,000,000 for agricultural equipment; $25,000,000 for construction materials and equipment; $20,000,000 for equipment and materials for industry; $5,000,000 for communication facilities; $8,400,000 for trucks and buses; and $5,500,000 for harbor development.

From the point of view of quick and efficient utilization of the money, an Ex-Im official in Washington expressed the belief that the Israel loan is one of the best that the bank has made.

Most recently the country has begun an intensification of its efforts to attract private investment capital. It has granted tax reductions to firms establishing businesses here, and has given them the right to take out of the country each year profits up to 10% of the invested capital. Now, there is a so-called Investment Center, a government agency, that is drawing up an investment program in terms of actual plant needs. Its list of industrial projects, for example, cites a steel casting plant of four-ton capacity to make parts for rock crushers and cement mills, a factory for the manufacture of hospital and medical equipment and dozens of others. The idea is that, instead of waiting for investors to investigate possibilities, specific proposals will be brought to their attention, with all essential information ready at hand.



LIFELINES FOR ISRAEL. By stage development of piping and conduit systems the country plans to bring water to all of its acres. Ultimate goal is agricultural development of the Negev desert.

• **Engineering and construction**—In the meantime, engineering development must go ahead to take care of the new population and to prepare the basic facilities to service the economy. In order of importance and urgency—which would also correspond to the present activity rating—these facilities would encompass housing, water supply, roads, industrial building and port work.

Housing, in addition to refugee camps, is mostly in the form of one or two-room dwellings in new agricultural communities, but there is considerable apartment house construction in the three large cities of Haifa, Tel Aviv and Jerusalem.

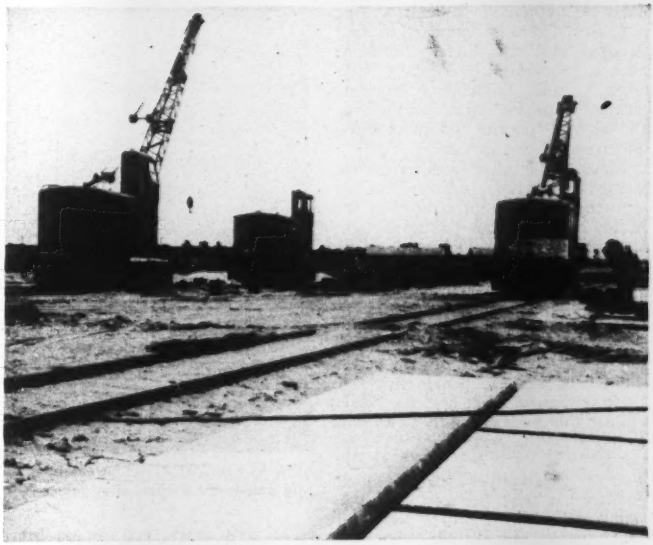
Water supply, absolutely essential to the agricultural development of the country and the consequent support of the new population, is the most complex and interesting of the engineering problems, and is given extended treatment below.

Israel's roads are excellent by Middle East standards, but require widening and, of course, extension as new settlements are established in hitherto unpopulated areas. The country has only about 35,000 motor vehicles, but is expanding its bus and truck fleets—upon which the transport of the country will be based. The most important new road—upon which construction has just started—will run from Beersheba to Sedom at the south end of the Dead Sea. It will permit a reopening of the potash refinery near the latter place—an important consideration since the salts of the Dead Sea are Israel's greatest natural resource after its sunshine.

Industrial building is varied, but small in size and not nearly large enough in volume. The most impor-

tant project—as a construction operation and measured by economic consequences—is a concrete pipe factory that the Lock Joint Pipe Co. has contracted to build and operate. It is a key facility in the country's water development.

Port activity at present is concentrated at Haifa where construction is about to start on a new "free port," north of the present piers and breakwater. It involves dredging a new mouth for the Quishon River and widening the stream into a ship basin for perhaps a mile upstream. A report has also been made by Knappen, Tippetts, Abbett Engineering Co., New York consultants, on a harbor to be located somewhere south of Tel Aviv, and this is receiving serious consideration. With Haifa, the only present port, located at the extreme north end of the country, much costly land transportation is required for both imports and exports. A port in the Tel Aviv area would not only serve that city but Jerusalem as well.



NEW AMERICAN CRANES being assembled for service in the pipe casting plant at Migdal Gad. In foreground is a corner of the heavy slab covering the curing yard.

• **Water is the key**—Fundamentally, none of this planning and activity has any solid basis unless the water supply problem is solved. Israel, like India, must stake its future on water. But unlike India, which could go along at its present low standard of living without much more water, Israel will collapse under the weight of its immigrants unless they get water to make their land produce.

Recognizing the "water-or-else" situation, Israel has drawn up a comprehensive program of development to be carried out as fast as financing can be arranged over the next 15 or 20 years. Parts of this program are already under construction, and in December a consulting board of eminent American engineers—Abel Wolman of Johns Hopkins University, John L. Savage, consulting engineer and former chief design engineer of the Bureau of Reclamation and Harry M. Bashore, former assistant commissioner of the Bureau—gave its approval to the much larger second stage, estimated to cost 65 million Israeli pounds, which may be $100 million at current free rates of exchange.

It may also be noted that D. B. Gumensky, formerly with the Metropolitan Water District of South California and then with the Chinese government in connection with the proposed Yangtze Gorge project, came to Israel eight months ago as design engineer of its water department. And finally, it is on a report made by James B. Hays, formerly one of the top-notch TVA and Aluminum Company construction and hydraulic engineers and now with Morrison-Knudsen's international division, that the overall water scheme for the country is based. Israel is seeking and using the best technical help that it can find.

To understand Israel's water plan it is necessary to appreciate something of its geography and its governmental and social setup. A water department has been established in the Ministry of Agriculture headed by S. Blas, a vigorous and visionary, but well-informed and realistic engineer, as director. It is he who pushes the planning and construction, but there are other powerful influences at work, giving help and guidance. It is perhaps safe to say that there is one other influence—namely the Histadrut, the general federation of Jewish labor. It is estimated that its members and their families constitute half of the population of Israel. It is certain that 7 of the 12 government ministers including the prime minister are members.

BIG OPERATORS, these men—M. Ulish of Soleh Boneh and C. F. Boyle of Lock Joint Pipe Co.—are building and will run the plant that will make Israel's water conduit, at a rate of 2,000 ft daily.

• **Labor union in business**—But what is most significant from an engineering point of view is that the Histadrut controls and runs a large number of industrial and commercial enterprises. Among them are the country's largest building and public works contracting company—Soleh Boneh—which also operates foundries, glass works, the nation's only cement plant and several other factories. The Histadrut also owns and operates the Mekoroth Water Co., which constructs and operates all of the water projects.

Both Soleh Boneh and Mekoroth have efficient organizations—if one may judge from general opinion and what may be observed on a brief visit—and in any event they have strong public support by virtue of their activities during the Palestine-Arab war. Soleh Boneh was virtually the Engineer Corps of the Israeli Army and also its arsenal of production. Mekoroth, which among other things operates the pumping plant at springs north of Tel Aviv that supply

water to Jerusalem through a long pipeline, kept water flowing to that besieged city and literally saved it from surrendering. Incidentally Mekoroth is now building a duplicate pipeline into Jerusalem and placing all of the booster pump stations underground just in case.

Mekoroth is also given credit for saving the whole southern desert area—the Negev—from capture by the Arabs. It came about this way. Right after the World War, Mekoroth bought a large quantity of old 6-in. pipe from London where it had been used in a smoke screen protective system. This pipe was laid into the Negev from several well fields to permit the establishment of new settlements. It was the people living in these settlements that held the Negev against the Arab attempts to capture and control the area.

PLYWOOD FACTORY at one of Israel's many communal villages. The new addition will double the output, bring increased revenues into village treasury.

• **As to geography**—Israel is a small country (as may be seen from the map) extending through less than four degrees of latitude and only about one degree of longitude. It contains about 21,000 sq mi of the 27,000 that comprised prewar Palestine—and it is the 6,000 sq mi chunk, which the UN armistice commission awarded to the Arabs along the Jordan River and the Dead Sea, that greatly complicates Israel's water planning. It leaves only a narrow coastal strip 15 to 50 miles wide joining the northern and southern parts of the country, and in addition provides only a 5- to 6-mile wide corridor from this strip into the capital city of Jerusalem.

Topographically the country may be said to be divided into three contrasting areas—the hills of Galilee in the north, the flat and fertile coastal plain in the middle and the desert expanse in the south, also quite hilly. Between the hills of the north and the coastal strip is a fertile east-west plain—the Plain of Esdralon—running from Haifa to the Jordan River. On its eastern frontier are three inland bodies of water connected by the Jordan River and noted for their relative elevations—Lake Hula +230 ft; Lake Tiberias (the Sea of Galilee) −700 ft; and the Dead Sea −1290 ft. It is these latter two deeply depressed bodies of water that have prompted the proposals for several hydro-electric schemes.

All of Israel's water is in the northern half of the country. It is found in underground aquifers, in natural springs and in the winter runoff of wadis. There is a surplus of water in the extreme north, a reasonable balance between demand and supply in the central coastal strip, and an almost complete absence of water in the south. It may be possible to dam some of the wadis of the Negev to store seasonal waters, but the almost complete absence of any hydrological or geological data is a deterrent to placing any faith in such a supposition.

This arrangement of water supply made clear the broad outlines of a water plan—to collect and transport the excess water in the north to the south of the country, at the same time providing for development along the way to make the local water more widely available. How this is proposed to be done is indicated on the accompanying map.

• **Three stages**—There are three stages to the plan each designed to mesh into the next one. The ultimate objective is a single conduit from north to south equipped with a large storage reservoir and supplemented by other shorter conduits and pipelines to provide distribution in the different regions and over shorter distances.

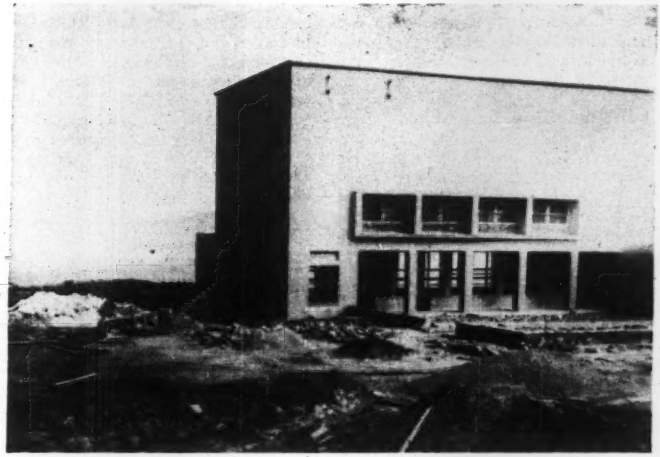
Stage 1, which is now underway, is known as the Regional Scheme stage. It is marked (4) on the map. It involves driving wells and building short lengths of pipeline to connect them and distribute the water to the new settlements and farms. There are a dozen or more of these schemes depending on how one groups the individual lines. Such sharing of water is a new development since Israel became a state. Before that, individual water rights were recognized, and a well or spring on a man's property was his alone. These new pipelines are planned to divide the available water equitably.

One interesting aspect of these regional schemes is that a number of them are planned to make use of the saline water that is found in some wells and springs. By mixing sweet, i.e. fresh, water with the saline, the salt content of the combination can often be reduced to 3 ppm, which is satisfactory for agriculture. Most frequently this mixing is done in the pipeline, but sometimes small reservoirs are used, as on a scheme along the south side of the Esdralon plain south of Nazareth. Where the salt content is too high, duplicate lines are laid for the sweet and salt water, and the latter conducted to fish ponds. Such fish as carp are as much of a crop in Israel as wheat or oranges, and these fish ponds are seen everywhere.

Most of the existing wells are about 300 ft deep, and those now being driven are sunk to about that depth. They produce about 440 gpm each or enough for about 24 acres of crops. It has now been established that deeper wells, placed higher up in the hills, will produce as much or more water, and drilling of wells as much as 1,500 ft deep is now commencing.

Stage 1, the development of the underground waters is now about half done, and will cost when complete about $50,000,000. Stage 2, whose cost has been placed at about $100 million, is just starting, and is planned to be finished in five years. Marked (3) on the map it is known as the satellite or sub-master scheme because it is closely allied to the master scheme and is planned to serve as a sort of a stopgap until the more costly single conduit can be built.

Stage 2 consists broadly of three sets of 66-in. dia concrete pipelines, one pair in the north, in Galilee, another pair of lines penetrating the Es-



ADMINISTRATIVE AND DINING HALL BUILDING for a new communal village on the shores of Lake Tiberias.

dralon Plain from the vicinity of Haifa, and the third pair in the south, running from the vicinity of Tel Aviv down into the beginning of the Negev.

The northern pair will gather water from the springs above Lake Hula that form the headwaters of the Jordan River and also from wells. The line nearer the Jordan is at a much lower elevation than the one farther west, so that the two lines serve quite different areas despite their closeness to one another.

The set of lines originating near Haifa—and shown on the map as a single line—will gather water from the springs that feed the Quishon River and from wells. It is also planned to pick up the sewage effluent from the city of Haifa.

The southern pair will get most of its water from springs—those that feed the Yarkon River, the only perennial stream in Israel with the exception of the Jordan. Well water will also be brought to these lines, and the western one will eventually carry the sewage effluent from Tel Aviv. As was previously noted, it is a pumping plant at the springs of the Yarkon that has supplied Jerusalem with water for a good many years.

Tied in with these southern lines is a requirement for a diversion dam across the Yarkon, and a new well-water supply for the city of Tel Aviv. The latter is under study by the Knappen firm and will involve deep wells farther inland than the present well supply, which is becoming salty from excessive pumping.

In so far as Stage 2 construction is concerned, it is planned to begin it from the southern end this year using it initially to carry only well water until the Yarkon source can be developed. This will permit getting some water to the Negev at the earliest possible time, and is also deemed to be the cheapest way to attack the work.

• **Big pipe plant**—Partly because of this south-end start, the factory that will supply the pipe is being built in Migdal Gad, about halfway between Beersheba, the southern terminus, and Tel Aviv, the northern terminus. In size and modern equipment this plant will compare with the best anywhere. Its three steel-framed buildings will house shearing, welding and rolling machinery to form the steel cylinders which, with an outside bar cage, comprise the reinforcement of the concrete pipe. The steel joint rings will also be manufactured here. Production lines originating in these buildings will extend outside to where the concrete casting machinery will be located.

A large part of the 22½-acre site has been paved to accommodate the curing facilities, and this will be served on both sides by rail lines that have been laid throughout the plant. Two modern batching and mixing plants are being assembled to manufacture the concrete. Cement will be obtained in bulk—the first instance of such supply in Israel—from the country's only cement mill, located at Haifa. Three sets of four 20-ton railroad cars are being obtained to assure that there will be no interruption in the supply.

Construction of this pipe plant has required 130,000 cu yd of excavation, the placing of 65,000 cu yd of a decomposed limestone stabilizing material over the unpaved areas and the driving—or rather boring—of 3 miles of concrete piles under the buildings and a large part of the paved area. These piles vary in diameter from 10 to 40 in. and have belled-out bottoms whose diameters range from 24 to 80 in. Holes corresponding to these dimensions and from 20 to 30 ft deep were bored and dug in the soil, which would stand up without sheeting. After reinforcing cages were lowered into the holes they were filled with concrete to form the piles.

The plant is being built to produce pipe in diameters of 30, 36 and 66 in. in 16-ft lengths. Its daily capacity will be 130 pipe of which 52 will be of the 66-in. size. The work of building and operating the plant is under the direction of C. F. Boyle of the Lock Joint Pipe Co., and he is aided by M. Ulish of the Soleh Boneh organization.

Stage 3, the master scheme, is still some distance in the future, and has as its primary purpose the transport of excess water in the north to the dry Negev. On the map it is shown ending at a distribution reservoir north of Beersheba, but this is only because the location of the long loops that will extend far south of that city have not yet been determined. In addition to the fact that the conduit will have a cross section in excess of 120 sq ft this facility will be notable for the inclusion of a large storage reservoir.

Located north of Nazareth, Battauf Reservoir, as it is called, will have a capacity of at least 400,000 acre-ft and perhaps twice that much if it is found that the higher hillsides of the reservoir site, made up of a porous limestone, can be sealed economically and effectively. The bottom and lower sides of the site are covered with a very watertight clay. Borings and designs for the dam required for this reservoir are under way at the present time. This entire master scheme is estimated to cost 100 million Israeli pounds, ($150 million) of which the reservoir will account for about 15 percent.

• **Power scheme**—What might be called a fourth stage of the water development program contemplates a 25-mile tunnel to carry water from the Mediterranean Sea near Acre across the country into Lake Tiberias at a 700-ft lower elevation. The power plant would be located on the lake shore. Other power plants have been contemplated along the Jordan River, which joins Lake Tiberias with the Dead Sea, located an additional 600 ft below sea level. But these are merely indicative of what might be done under peaceful world conditions. At present all the sites are in Arab territory under the control of Trans Jordan.

The presently contemplated power

scheme is different from the one suggested in the report of James B. Hays, which included a pumping plant near Haifa to lift Mediterranean Sea water into a conduit which would cross the Esdralon Plain to the Jordan River (ENR May 9, 1946, p 753). The heads available to the two schemes are not greatly different, but Mr. Blas presently holds the opinion that the tunnel would be cheaper than the pump plant and the conduit.

Each of these power schemes is predicated on taking for irrigation all of the fresh water that now flows down the Jordan River and replacing it with salt water from the Mediterranean. If the Dead Sea is merely to be maintained at its present level, Mr. Blas estimates that the tunnel scheme will furnish the country with 750 million kwh of energy annually. Should it be permissible to raise the Dead Sea level, perhaps twice that amount of power could be generated.

In any event, whatever hydro power can be developed will be a great boon to power-starved Israel. At present all the power comes from two diesel steam stations at Haifa and Tel Aviv (total capacity about 100,000 kw) plus a 10,000 kw plant at Jerusalem. There is an 18,000 kw hydro station on the Jordan below Lake Tiberias, although it never provided firm power, it is now in Arab territory and out of service.

Despite the evident need for power, however, no one is very optimistic that the Mediterranean scheme will be undertaken very soon. Too many technical and financial obstacles have yet to be overcome.

• **In the meantime**—While hydro power and large scale agricultural development of the Negev based on water from the north are not a part of Israel's immediate future, the country's planning and stage construction go ahead with these and other objectives in view. Taking a population of four million (nearly three times the present) as the ultimate, these facts have been accepted as guides:

(1) About 750,000 acres of irrigated land will be required to produce enough food to eat, and another 350,000 to produce food and fiber for export. The present total of irrigated land is 100,000 acres. This acreage is being steadily increased by the regional water projects, which—to make one comparison—used 105,000 tons of steel pipe in 1950 compared to about 4,000 tons annually before Israel became a sovereign state. In addition, it is estimated that about 10 miles of the large concrete lines of the Stage 2 development will be put in service each year.

(2) Despite the large area of irrigated land needed, only about 20% of the population will be engaged in agriculture. Industry and commerce must absorb the rest, and it must not be, as now, concentrated in the three large cities of Tel Aviv, Haifa and Jerusalem—for "strategic, economic and social reasons" as one of the planning studies states. Accordingly, the country has been divided into 24 regions, each to have about 100,000 population. Regional administration will be concentrated in towns of about 50,000 population—in each of which there will be "industrial estates" or zones in which the government will supply such services as power, water and transport for both private and government-owned factories. Migdal-Gad, where the concrete pipe factory is being built, will be one of these towns as will Beersheba in the Negev.

(3) The transport objective is a north-south highway of modern type and new ports at Haifa and south of Tel Aviv. The Beersheba-Sedom road now underway is a link in this north-south highway, and the new harbor at Haifa is to be started soon by a Dutch contractor.

With what it has, what it hopes to be able to borrow and particularly with what it expects its new immigrants to produce, Israel plans to whittle away at these objectives until they are attained. The task is being approached with a confidence and enthusiasm that are amazing in view of the difficulties that are plainly visible. But it is this attitude that accounts for the progress made so far, and it may well be that it will last through to the end.

Concrete pipelines for United Nations

Five-foot pre-cast concrete ducts—thirteen of them—will carry ventilation exhaust underground from the United Nations Meeting Halls Building (ENR June 22, 1950, p. 26) to a tunnel under an adjacent avenue in New York. Ducts also will carry all utilities for UN headquarters.

Pre-cast pipe for this installation is said to be 20-40 percent cheaper than other types—corrugated iron, cast iron, and cast-in-place concrete—when both original and ultimate cost of the installation are figured.

The pipes lie in two banks. A seven-duct bank has four straight runs and three runs that make two 90-deg turns. The other one, a six-duct bank, has three runs that make two 90-deg bends and three runs that make a 90-deg bend and a 67½-deg bend. (The 67½ bend accommodates the building's curved face.)

Ducts open into a chamber along the building's underground face. The purpose of the bend-combination is to obtain a ventilating manifold effect at the chamber. Four groups of ducts (two from each bank) enter the chamber at about 85-ft spacing.

All pipes are reinforced and have lap joints sealed with a continuous rubber ring and poured hot asphalt cement. Pipes' outer surfaces are damp-proofed with bituminous material. Straight pipe sections are 4 ft long, manufactured in standard forms.

• **Bends made in two joints**—However, special steel forms were required for the bends, which were specified at 10-ft radius to the axis. Two sets of 25-deg forms and two sets of 33¾-deg forms were made by Federal Steel Fabricators, Columbus, Ohio, and shipped to the pipe manufacturer's plant in Kenvil, N. J. Pipes cast in the forms were paired to make required bends. Grade adjustments for vertical curves were possible because tolerance in joints allowed as much as 3-deg axis variation from section to section. There is one 20-ft vertical curve in each run at the street-tunnel end. from the tunnel.) Having an intersection angle of from 4 to 8 deg, depending on total run length varying from 60 to 120 ft, the curve brings its duct level into the tunnel. The remainder of each run rises to a point 8 ft higher than the tunnel, at the building.

Maximum loads are imposed on the pipes at the street end, the backfill at this point being 30 ft deep.

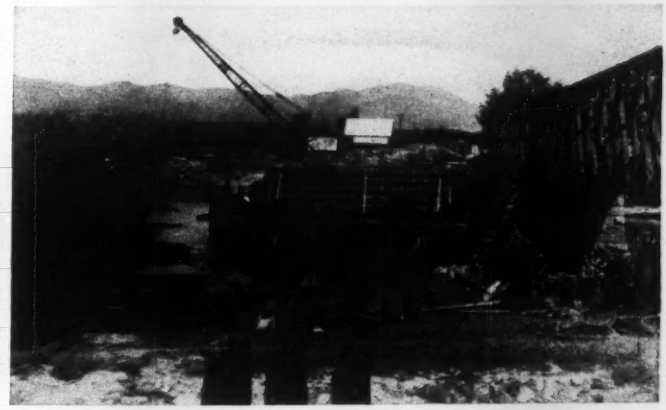
Construction—Each bank was built in a common trench excavated in mixed ground. Properly bedded in compacted soft backfill, the bends and 4-ft lengths were laid male-end downgrade. Pipe sections were trucked to the site, handled by light cranes.

Deliveries included 303 straight sections, 24, 45-deg bends, and six 33¾-deg bends.

The concrete-pipe sub-contractor was Universal Concrete Pipe Co., Columbus, Ohio.

Prime contractors for the United Nations on this work, as well as on the avenue tunnel, are Slattery Contracting Company and Poirier & McLane Corp., both of New York.

8-TON FORM swings over the Connecticut River on way to center foundation.



NESTED IN ITS COFFERDAM, the form is ready to receive concrete. (Covering already has been removed from old bridge, which will be dismantled later.)

Pier form for two-span highway bridge assembled on shore, set in cofferdam

SAVING CONSTRUCTION time by preassembling forms while foundations are being prepared is standard procedure for W. H. Hinman, Inc., contractors of North Anson, Maine. (An instance of the Hinman technique was given in ENR June 23, 1949, p 42; there, forms were preassembled for bridge-pier shafts of a toll structure in Augusta, Maine.

But the firm outdid itself when it built a bridge across the Connecticut River between Lancaster, N. H. and Guildhall, Vt.

Built to replace a covered bridge, the new structure consists of two 150-ft spans between river-bank abutments, with 28-ft roadway and sidewalks.

The center-pier form, 51 ft long and 29 ft high, was erected on the New Hampshire shore while foundation work proceeded in midstream, according to Howard B. Fleming, superintendent for Hinman.

When the foundation was ready for the pier form, it was a matter of two hours work to get the form into place. If the form had been built in place, nine days would have been added to the job's total time.

Mr. Fleming says this form is the largest one his firm has pre-assembled yet. It was complete with form ties, except for a small coping that was built in place to allow for any small variation in grade. It weighed about 8 tons.

The equipment for handling the form included a 1½-yd crawler crane with 75-ft boom; the crane worked on a barge made up of 48 (12 x 4) Navy pontoons.

"We moved the pontoon barge to the shore of the river," Mr. Fleming says, "and picked the form up with the crane. After the form was swung around, the barge was maneuvered out into the river and moored to the cofferdam.

"The cofferdam was flooded, its bracing having been removed to provide clear space for the form. The form was lowered onto the footing, guided into place by irons that had been placed in the footing concrete when it was poured.

"After the form was set, holes were cut in it, the cofferdam bracing was placed, the dam pumped and concrete poured. The form was placed on a Friday and the concrete was brought above water level the following Tuesday."

• **The foundations**—Normal depth of the Connecticut River at the bridge site is about 10 ft. The pier is supported by steel H-piles. A sheet-pile cofferdam was mucked out to a depth about 5 ft below river bed; H-piles were driven above water; then an 18-in. concrete seal was tremied in, and the sealed cofferdam was dewatered.

Piles were cut off, one ft above seal, the distributing block was placed and the foundation was ready for the already-built pier form.

Some difficulty was experienced in pile driving due to boulders in the riverbed stratum.

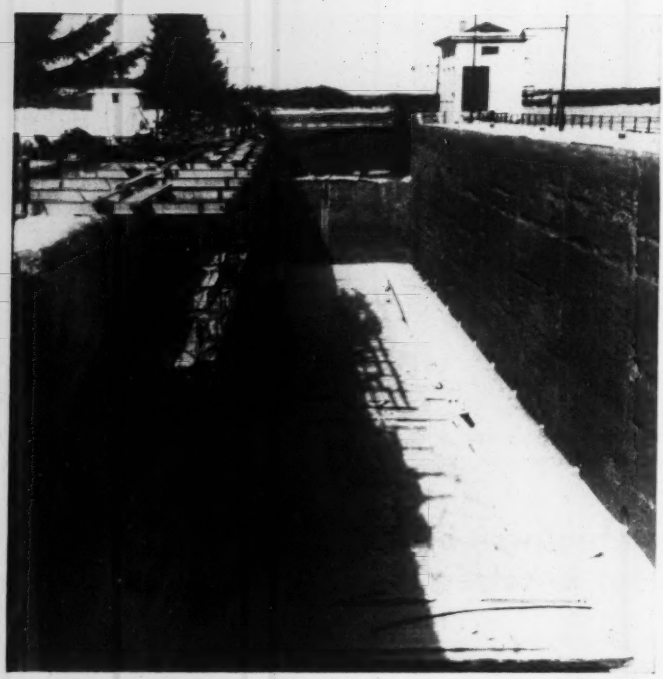
The bridge was built by the New Hampshire State Highway Commission through agreement with the State of Vermont. For the state of New Hampshire the work was under Robert Whitaker, construction engineer, with Lawrence McMurphy as resident engineer.

Short-run local travel is major traffic problem

Local travel that involves short trips within and to the metropolitan center is the major problem complicating the traffic situation in the Philadelphia-Camden area, the City Planning Commission said in a recent report.

The survey on which the planning commission based its report is said to be the largest such study ever made to analyze a metropolitan area's traffic movements. It was started in June, 1947, and the data were obtained from 216,508 roadside interviews and almost 40,000 home interviews. A total of 5,246,000 person trips is represented in the survey, which cost $250,000 to complete.

It was found, the commission said, that the purpose of almost 44 percent of the automobile trips into or out of the survey area was to and from places of work; slightly more than 35 percent for social and recreational purposes; over 7 percent for business; more than 6 percent for shopping, and the remaining 8 percent for other reasons. Only 5.4 percent of all vehicle trips passing through the survey stations continued on without either terminating the trip or making a major stop within the area.



CLOSED SEASON for barge traffic is open season on worn-out lock walls. Building-type hanging scaffolds provide access to concrete-chipping and reinforcing. (ENR photo)

Winter concreting, intrusion method combined on barge canal lock repair

SCARRED and spalled concrete walls in locks of the New York State Barge Canal may get a new kind of repair treatment as a result of an experiment with grout-intruded concrete.

Since 1936 the State Department of Public Works had been refacing old walls with wrought iron (ENR Sept. 30, 1948 p 61), but in 1950 the department decided to try a new approach. If it works, critical materials will be saved on future jobs.

• **Costs cut substantially**—Moreover, the state will be able to repair the locks more cheaply. Repairing one lock with concrete costs $130,000. Wrought iron costs $190,000.

Location of the current job is Niskayuna, about half way between Schenectady and the canal's eastern terminus, Cohoes. Repair of one wall was completed in the spring of 1950; a second will be ready for service this spring.

Officials say it is too soon to judge whether the grout-intruded concrete is a desirable replacement for wrought iron. Inspection this winter of the first winter's work reveals a smooth surface, with dense concrete exposed by superficial barge abrasions of the 1950 season.

Contract for the work was let to Weber Construction Co., Schenectady contractor, which is performing all work but the mixing and pumping of intrusion mortar. This work was sublet to Intrusion Prepakt, Inc., Cleveland, Ohio.

• **Wall preparation**—Weber chips a minimum of 6 in. of concrete from the lock wall, going as deep as 12 in. where necessary, to expose sound concrete.

Next he places ¾-in. vertical temperature rods at 18 in. spacing, secured every 18 in. (to three-unit cinch anchors), in a plane 3 in. from the planned concrete face. Cinch anchors are spaced by a trussed aluminum three-level templet hung from scaffold outriggers and carefully positioned for each set of 30 cinch anchors. Templet holes admit an air drill, which drives cinch-anchor holes 4 in. deep. Various-length half-inch bolts (or form-tie screws where required) from the anchors position the steel. Steel is welded in place.

• **Form work**—Next, preassembled plywood form units are made up into sections that are generally 31 ft wide, extend 34 ft from the top down to a point 10 ft above the lock floor. (No repairs are necessary in the lower zone.)

Forms—made up of 4 x 6-ft units—rest on a wood sill that is anchor-bolted to the concrete. Form ties are bolts that go through double wales and ¾-in. plywood, thread into double-female screws that in turn are attached to cinch anchors. Headers or previously-placed concrete close each form.

• **Placing aggregates**—Workmen then wheelbarrow aggregates from dump truck to form, placing the material in 8-ft layers that are compacted by rods and form vibrators.

Aggregates are ¼ to 1½ in. crushed stone graded to yield voids no greater than 40 percent.

Cold weather has prevailed during most of the work, so when aggregates for a section are placed, steam is admitted into the form for several hours, then the materials are allowed to stand a few more hours until internal temperatures even up.

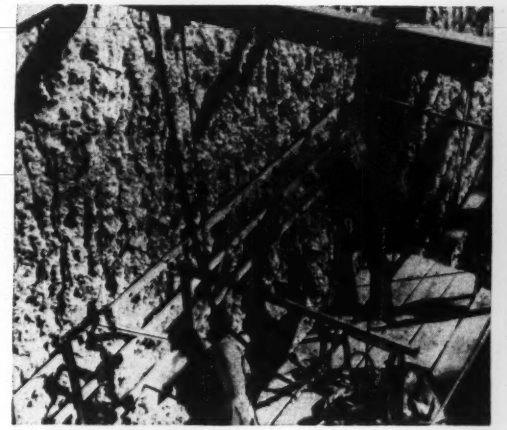
• **Intrusion work**—At this point Prepakt goes into action, pumping its special mortar into the aggregate voids. Cement, Alfesil, "intrusion-aid," sand and water compose the mortar.

Alfesil is a pozzolan, or finely divided siliceous material (specific surface about 3,000 sq cm per gram). It reacts with lime, liberated during cement hydration, to give the mortar added strength and reduced permeability.

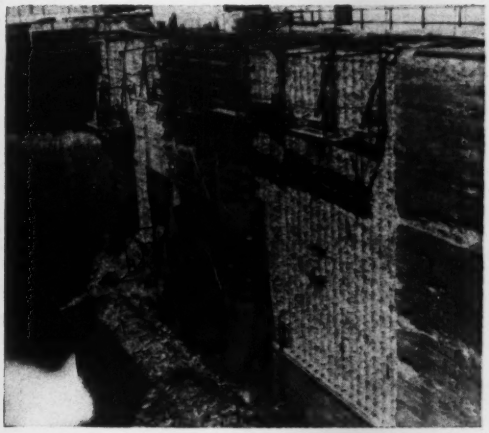
"Intrusion-aid," used in small quantities, appears to be an air-entraining agent, which makes the mortar highly workable. The aid also is said to eliminate setting shrinkage—a problem frequently encountered where pozzolan is used. Elimination of shrinkage is a particularly desirable property where aggregates are to be cemented by mortar-intrusion.

This mortar also is said to penetrate the surface voids of old concrete, producing a tough bond at the surface of contact.

To check this last point, the New York State Department of Public Works has taken core samples of the Niskayuna work. Shear and compressive tests show the new-old concrete bond to be superior to that within either adjacent material.

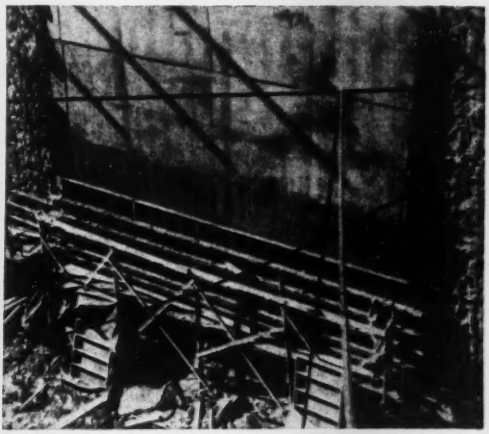


ANCHORS for temperature steel are spaced at 18x18-in. centers with aid of aluminum templets. -(George Yanson photo)



STEEL AND FORMS, placed after bad-concrete removal, are essential preliminaries to mortar-intrusion concreting.

CRUSHED ROCK, wheeled from dump trucks, goes into winter-protected forms, where it is rodded for compaction.



CONCRETE exposed when forms are stripped, reveals a dense surface, free of honeycomb.

• **Mortar-intrusion at Niskayuna**—Mortar-intrusion at Niskayuna proceeds continuously from bottom to top, bored intrusion holes being provided in the forms at 3x3-ft horizontal and vertical spacing. Holes are 1-¼ in. dia. Feed from the mortar pump is through a 1-in. hose tipped by a short length of ¾-in. pipe.

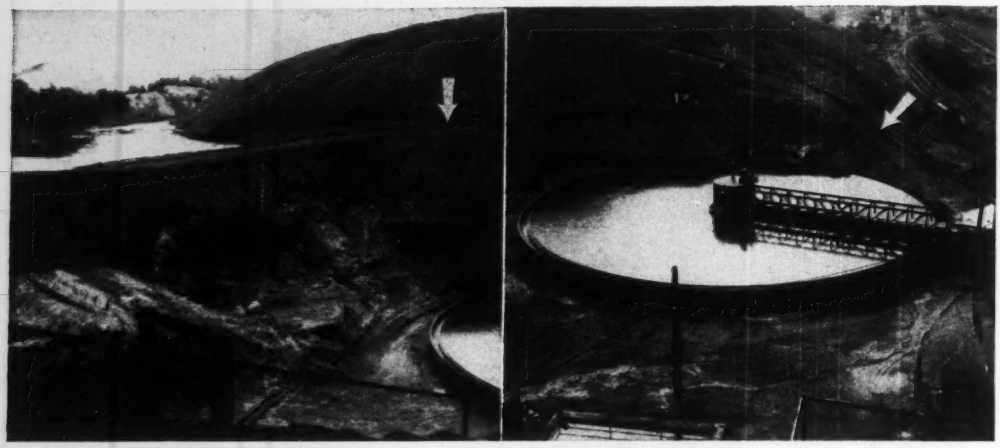
Intrusion takes about ten hours. Aggregate exposure at the concrete face is avoided by external form vibration. This vibration draws a film of mortar between the stones and the form surface. Form stripping takes place five days after intrusion of a section.

• **Winter protection**—Meanwhile, almost all steps of the work must be protected from cold winter weather.

Hanging scaffolds, from which wall-chipping and steel placement are handled, are shrouded with tarpaulins to protect workmen from cold winds. (Outriggers that carry the scaffolds, by the way, are aluminum I-beams.) Fixed scaffolds, built on the concrete forms, are inclosed with tarpaulins or fiber-reinforced building paper. Fixed scaffold inclosures are heated with oil salamanders. The heat is maintained in the inclosures for the full five days after intrusion is complete.

Waste is removed ingeniously. Barges, shown on the opposite page, are brought into the lock when it is to be dewatered. They rest in the lock-bottom snow throughout the work. Provided by the state, at the end of the working season they are loaded with work waste, floated to a designated backwater area of the Mohawk River, and dumped. Loading is by bulldozer and clamshell. A small dozer is lowered by crane into the lock, to shove material to the clamshell, which operates from above.

• **Management**—In charge of construction for the contractor is Robert Flicker. R. R. Kittle handles Intrusion-Prepakt's subcontract. For the owner, B. D. Tallamy is the New York State superintendent of public works. District engineer is G. L. Nickerson, and John L. Bennett is in charge at the site. E. J. McGovern was in charge last year.



COAL SILT DISPOSAL SYSTEM—Wash water from coal breaker enters clarifier (right) where solids settle. Clear water overflows to creek, and sludge is pumped up-hill through 6-in. pipe (arrows) to man-made refuse basin (upper left).

Settling of coal-breaker wash water prevents black-silt stream pollution

COAL-SILT—from the Hudson Coal Company's Pine Ridge Colliery—is no longer a stream-polluting agent in Mill Creek, a tributary of the Susquehanna River north of Wilkes-Barre, Pa. It's intercepted in a settling basin and wasted in a man-made excavation. Only relatively clear water overflows to the creek.

The $85,674 industrial-waste plant was built to comply with Acts 394 (1937) and 188 (1945) of the Pennsylvania legislature. Basis of the Clean Stream Program, these acts have specific sections governing the discharge of industrial wastes into state's streams and rivers.

• **Plant is simple**—All wash water from the breaker—about 4,800 gpm—flows in an open flume by gravity to a screen-bottom, steel feedwell surrounding the center pier of a 120-ft dia clarifier. The flume, located under the bridge to the pier, is made of steel and lined with vitrified-clay tile. Top of the feedwell is several inches above overflow level of the clarifier.

Breaker wastes pass through the screen into the clarifier. Here solids settle out and are pumped to an impounding basin, part of a nearby refuse bank. And overflow, amounting to about 3,920 gpm of near-clear water, flows directly to Mill Creek. (Overflow is about 0.35 gpm per sq ft).

Liquid discharge from the clarifier's surface is over a V-notched circumferential weir into circumferential launder. The launder empties into an outfall weir box connected to the drainage system that discharges to the creek.

The concrete launder, two-ft wide and 2.58-ft deep below overflow level, has an outside height of 3.75 ft. It's an integral part of the tank's concrete sidewall.

Sludge, settled out as the liquid flows radially to the launder, is raked to a sump by a power-driven revolving rake. The sump encircles the clarifier's central pier at its base.

Two six-inch rubber-lined steel suction pipes terminate in this sump. They extend through a 4.75-ft square precast-concrete tunnel to a well outside the clarifier and then rise to two automatic underflow pumps.

THE PINE RIDGE COLLIERY

The colliery has an input of 2600 net run-of-mine tons daily for preparation. Coal preparation involves crushing, sizing by screens, washing raw coal by various types of equipment. In this process waste and foreign substances, unburnable materials, are removed from each size of anthracite coal down to end including silt. Burnable coal and silt are recovered and sent to market.

These are 5-in. centrifugal sludge pumps one of which is an emergency unit. They are inclosed in a concrete-block building.

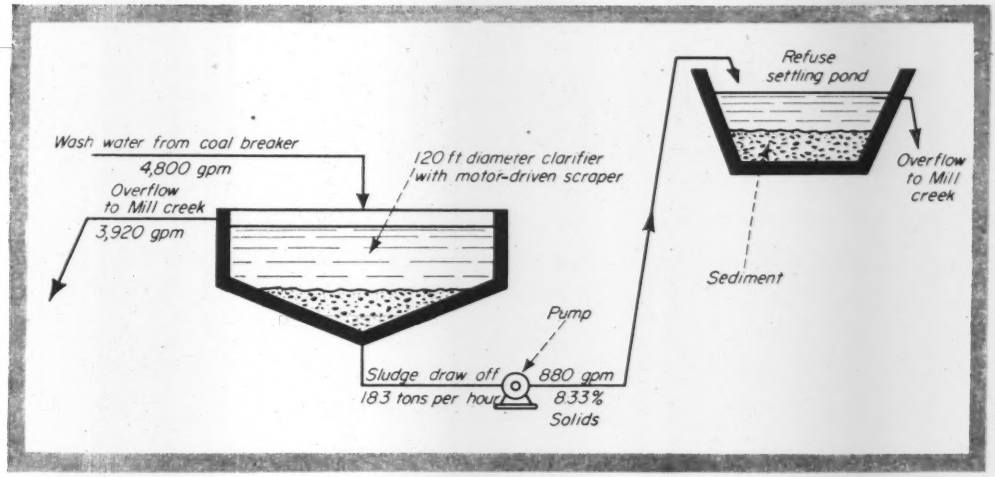
Solids, well-lubricated by liquid, are discharged through a manifold to a six-inch rubber-lined steel pipe. This pipe extends several hundred feet to a three-acre 25-ft deep refuse pond. This pond, excavated in an old breaker-refuse bank, serves as a storage and settling basin. With unlimited detention, fine solids settle out and clear liquid trickles off to Mill Creek by a small overflow.

The refuse basin has an anticipated life of 2.5 years. When it is filled, additional nearby areas will be excavated and utilized for collecting sediment.

No attempt is made to recover any of the solids from the clarifier underflow.

• **Performance** – Effluent from the clarifier and refuse basin is acceptable to the Pennsylvania State Department of Health. Maximum turbidity allowed by the state is 1,000 ppm. Tests of overflow indicate 19 and 30 ppm turbidity from the respective units under present operating conditions.

The waste plant is designed for an anticipated maximum volume of 9,000 gpm of breaker wastes. This means that it will ultimately handle about 45 tons of solids per hr.



WASH WATER flows to clarifier by gravity. Sludge and water are pumped automatically through a rubber-lined pipe to a refuse settling pond. Deposited materials are not being reclaimed.

• **The clarifier**—The clarifier is a concrete tank, 10 ft deep from overflow to the bottom at the periphery and 12-in. thick. It is reinforced both horizontally and vertically and set on a firm, concrete-footing foundation. The bottom slopes 1.5 in. per ft toward the center and is paved with blue-clay, 18-in. thick. The clay was put in place with scrapers and rolled and has proved an inexpensive water-tight bottom.

A center column supports a scraper mechanism which gathers settled solids into an annular sump around its base.

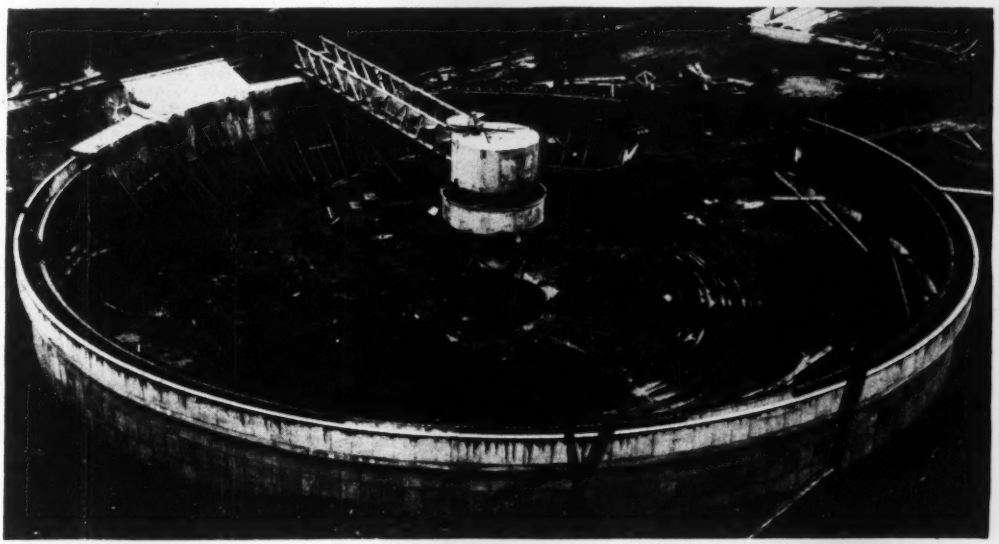
The wall and launder were poured in seven vertical sections, utilizing portable, sectionalized, plywood forms.

• **Men in charge**—G. B. Fillmore is president and F. C. Weichel, vice-president in charge of operation of the Hudson Coal Company, with main offices in Scranton, Pa.

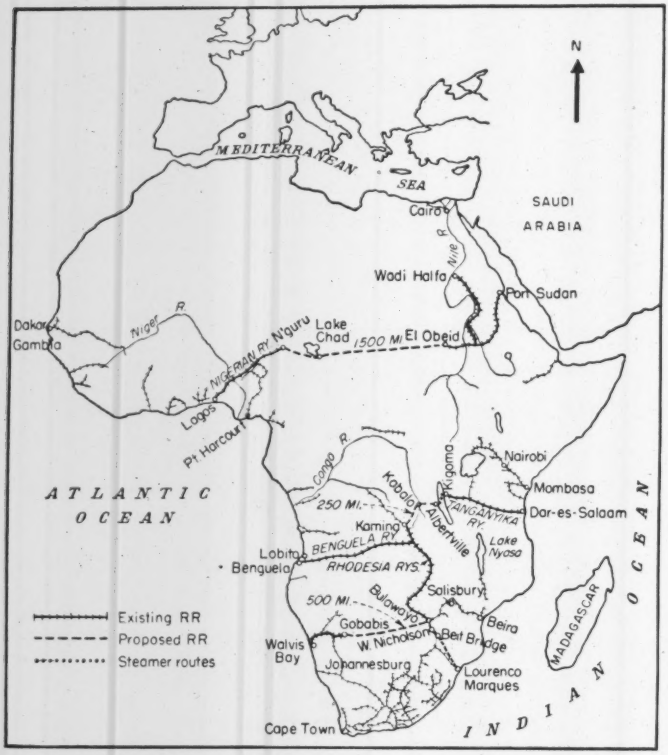
Construction of the plant was done by its own forces under the supervision of J. S. Johnson, superintendent of maintenance and construction.

Plant operation is under the direction of Outside Foreman W. R. Shaffer. Pine Ridge Colliery is managed by E. R. Williams, superintendent.

The rake and automatic lift in the clarifier were furnished by the Hardinge Company of York, Pa. Sludge pumps for the installation were furnished by Barrett-Haentjens Company of Hazleton, Pa.



CLARIFIER WALLS were poured in seven sections between plywood sectionalized forms. As an economy measure, compacted blue clay forms a watertight bottom. Sludge sump surrounds central pier.



THREE INTERIOR CONNECTIONS (heavy dash lines) to make three cross-continent routes are under consideration as a start in tying together Africa's transport system.

Colonial powers discuss Africa transport integration

Frederick R. Brewster
McGraw-Hill World News

INTERNATIONAL TEAMWORK—plus ECA cooperation—may bring about a revolution in African transportation.

Broad recognition that the continent could do with a lot of improvement in the transportation line was behind a major (Oct. 25-Nov. 16) conference in Johannesburg at which various schemes for new construction were considered, and a permanent international organization set up to deal with them. France, Britain, Portugal, Belgium and South Africa were represented at the meeting.

• **Patchwork pattern**—The region involved is that south of the Sahara Desert and east of the French and British colonies on the West African coast.

The railways and roads that now exist in this vast area were generally built with only one idea in mind: to tap the resources of particular areas, and bring out produce from farms or mines to the seacoast for shipment to Europe. Thus most of the transportation facilities were built largely within the frontiers of each colony—stretching inland from the coast. For this reason, it is nearly impossible to go from the outer reaches of one colony to another without first going to the coast, taking ship, and reaching the outlet of another railroad or road.

• **Change of heart**—But now a new "climate" exists in Africa. There is a growing realization in Europe that African territories are not exclusive, but should be the responsibility (and the opportunity) of the world as a whole. The bringing together in Paris of the 16 European nations teamed up in the Office of Economic Cooperation (including all the African colonial powers) has been a big factor, as has the powerful behind-the-scenes impetus of the overseeing Economic Cooperation Administration of the United States.

Moreover, such immense schemes of development are projected—and long overdue—that underwriting them would be impossible for any one country that evaluated the benefits solely in terms of profit to its own economy. But when planned in the perspective of a growing internal trade among the colonies, the cost becomes more reasonable.

Of course, the position of the present colonial boundaries—completely artificial and bearing no relation to the economic geography of the continent—would by itself call for a series of bi-lateral accords. Hence the growth of an international approach to the preparation of integrated schemes for the area.

• **A start**—There are already a few transportation facilities not wholly along national lines: The Nigerian railway also serves in part the needs of the French colony of Niger; the Belgians have, by treaty, an outlet at Dar-es-Salaam on the Indian Ocean and divert a considerable portion of the produce of the Congo eastward across Lake Tanganyika and down the Tanganyika Railway. Most striking of all are the Portuguese railways (particularly the Benguela Railway running from the port of Lobito on the West African coast through Portuguese West Africa into the Belgian Congo). They now continue eastward to meet the prolongation of the Rhodesian railways and also connect with the Portuguese railway linking Beira with Nyassaland and with Salisbury, capital of Southern Rhodesia.

• **Growing dependence**—The pattern for integration began to take shape with the Anglo-French conference at Dakar in May, 1947, which laid down a number of detailed recommendations for improving rail, road, and water transport for exchange of goods between the British and French colonies in West Africa.

Meanwhile, Portugal took the initiative for the Central and East Africa region by calling a joint conference at Lisbon in May, 1949, to which it invited the British, Belgians, South Africans and French, as well as U. S. observers.

It was this meeting which set up

plans for the conference at Johannesburg held last year.

• **Problem No. 1**—The conference, as well as one held in Paris in February, 1950, highlighted again the urgency of doing something about the port of Beira, on the Indian Ocean in Portuguese Mozambique. Some steps have already been taken—the Portuguese in June of 1950 undertook to improve the port facilities and re-equip the railway as required, and in return were assured enough traffic from British colonies to make full use of the expanded capacity. Portugal has already approved a $4,000,000 credit for re-equipping the Beira Railway.

At the Johannesburg conference, consideration also was given to the development of an additional East Coast outlet from Central Africa, most probably to Lourenco Marques, also in Mozambique, to relieve congestion at Beira. At this moment it is undecided, but it is likely that the conference will wait until the ECA-financed survey of these alternates, which include the development of the port at Lourenco Marques, is carried out.

• **Benefits**—ECA observers think that the least result of the conferences will be goodwill, plus discussions of the various schemes to show up the relative importance of various sectors of the transport network more clearly than would any bi-lateral discussions between the United States and a single African country.

ECA made it quite clear to the conference that its resources are not sufficient to underwrite the enormous cost of actual construction of any project such as the conference discussed as desirable. Nor, said ECA, would it use its influence to manipulate the nations into a cost-sharing scheme. But, the organization is definitely in favor of necessary rate-fixing and rate-readjustment in order to get maximum use out of existing transport facilities.

Notes on legal decisions

Summaries of decisions relating to construction work prepared by I. Vernon Werbin, counselor at law and engineer, New York, author of Legal Phases of Construction Contracts (McGraw-Hill Book Co.)

Agreement to subcontract

An action was brought by a subcontractor against the prime contractor for damages for alleged loss of profits resulting from the cancellation of contracts for the erection of certain housing projects.

All the work involved was on government projects and the subcontracts were to be performed on a cost plus basis. The prime contractor sent the subcontractor a letter directing him to start the work immediately. It was understood between the parties that they would execute a written contract on the standard form of government contract. During the interim, the subcontractor was to be reimbursed for obligations incurred because of the work done prior to the execution of the written contract.

The letter sent by the prime contractor to the subcontractor provided that all contract provisions required by law to be included in the subcontract were to be deemed included therein by reference. The letter further provided that the subcontractor's right to proceed thereunder could be terminated in the same manner and upon the same terms as those provided in the standard form of subcontract. The letter concluded with the statement that it "shall constitute an agreement until the execution of the definitive subcontract or termination thereof."

The subcontractor had been directed to proceed with the construction of 500 low-cost housing units, but as the war came to an end, the government issued a cutback order reducing the number of units to be built to 262. The action was brought by the subcontractor to recover for the loss of profits on the work that had been eliminated by the cutback order.

After the subcontractor had completed the 262 units, the Board of Contract Awards of the Navy Department established his fee at $80,000. This fee was accepted by the subcontractor and thereafter a definitive subcontract was submitted to and executed by him. This contract stated that the subcontractor was paid the amount of $80,000 for the construction of the 262 housing units. The contract also provided that it could be terminated for a default of the subcontractor or at the convenience of the government. The executed contract also provided that all the rights and obligations of the parties were superseded and merged into the definitive subcontract.

The subcontractor thereafter made a claim for $10,000, the amount of profit which he claimed he lost by reason of the elimination of part of the work. The court held[1] that while four different letters were sent ordering different parts of the work, only one contract existed and that was embodied in the definitive subcontract. As this gave the government the right to cancel the subcontract at the government's convenience, no cause of action existed to recover profits lost by the elimination of part of the work.

(1) Fleisher Eng. & Const. Co. v Winston Bros. Co., 42 N.W. 2d 396, Supreme Court of Minnesota, April 14, 1950.

Right to terminate contract

A contract was entered into for the construction of 45 houses. The contract provided: "Owner shall have the right to discontinue construction hereunder at any time deemed expedient by paying to contractor all of his costs accrued to date and in addition the prorata portion of any fees earned by contractor, and for the purpose of this paragraph costs are defined as any and every expense incurred by contractor with the construction herein provided for."

The owner before any construction work was done, notified the contractor that he exercised his "right to discontinue operations under said contract and not commence any construction thereunder."

The owner thereafter undertook to construct the houses himself. The contractor then brought the action to recover damages for breach of contract, claiming that the attempt to terminate the contract "was capricious, lacking in good faith, and wholly without cause." The contractor's claim was dismissed, the court holding that the owner in terminating the contract was only exercising a right given him under the contract.[1]

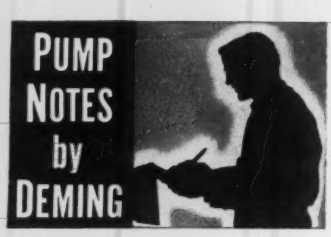
(1) Jones v Dumas Development Co., 229 S.W. 2d 936, Court of Civil Appeals of Texas, April 3, 1950.

Equipment on cost-plus work

As a general rule, in the absence of a stipulation to the contrary, a contractor under a cost-plus contract is not entitled to an allowance for the use of equipment owned by him and used on the job. This item is deemed to be covered by allowance for overhead.

Tools used in the construction of a building are part of a contractor's equipment, and a contractor, when he agrees to build on a cost-plus basis, must in the absence of an agreement to the contrary, furnish all tools and appliances necessary to perform the work contracted to be done.[1]

(1) Michelson v House, 218 P. 2d 801, Supreme Court of New Mexico, Feb. 20, 1950. Citing the following cases to support its position:
(a) Lytle, Campbell & Co., v Somers, Fitler & Todd Co., 276 Pa. 409, 120 A. 409, 27 A.L.R. 41.
(b) Shaw v G. B. Beaumont Co., 88 N.J. Eq. 333, 102 A. 151, 2A. L.R. 122.
(c) Advance Auto Body Works v Asbury Trans. Co., 10 Cal. App. 2d 619, 52 P. 2d 958.



Sump Pump

Various points about this Fig. 4607 Sump Pump are as follows:

Uses: Pumping drainage water from pits of every description; transferring common chemicals and other liquids from pits or tanks to higher elevations; and many other industrial applications.

Pump: Centrifugal type. Bronze impeller fastened to stainless steel shaft. Large bronze bearing supports shaft.

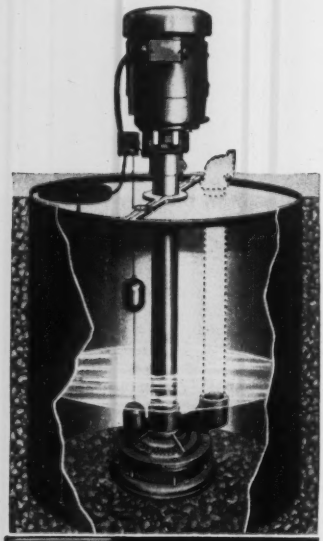
Motor: Either ⅓ or ½ H.P., 115-230 volt A.C. 60 cycle single phase, 1750 R.P.M. Extension cord furnished for light socket connection.

Column Lengths furnished for sumps 2, 3, 4, and 5 feet deep. Pump will fit in a 14" sump.

Capacities range from 20 to 80 G.P.M. Heads from 15 to 35 feet.

Other details available in Bulletin 4607. Write for copy.

THE DEMING COMPANY
536 BROADWAY • SALEM, OHIO

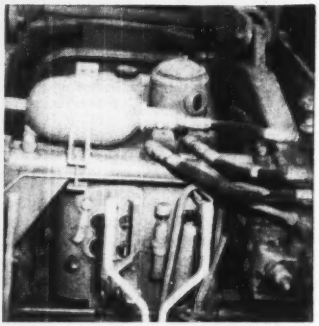


SPECIFY **DEMING PUMPS**

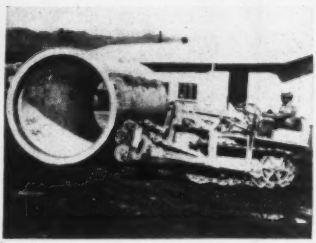
FIELD AND OFFICE

Tractor-mounted bucket speeds concrete pours

High mobility and rapid pours in the construction of basements and one-story buildings have been accomplished on a New York housing development by mounting a concrete bucket on the TractoShovel attachment of an Allis-Chalmers HD-5G tractor. The bucket has a ¼-yd capacity, and a 14-ft dumping clearance above ground level. The unit was designed by Bob Alliegro of the Eilbar Construction Co., and fabricated by Bernie Puff, Service Manager of the Hempstead, L. I., branch of the Frantz Tractor Co.—LEE DRASIN, GREER HYDRAULICS, INC., BROOKLYN, N. Y.



Hydraulic accumulator absorbs tractor shock and permits smooth operation even when carrying capacity loads.



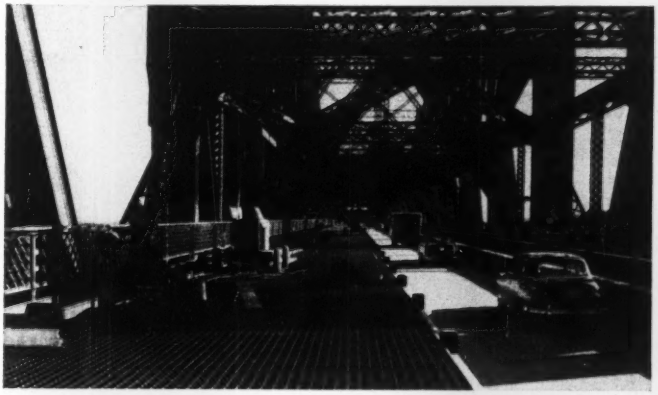
LARGE PIPE SECTIONS are easily moved with a special device used by the Hawaiian Dredging Co. of Honolulu. Concrete sections as big as 84 in. in diameter are pushed around by hard-rubber rollers applied to a bulldozer blade mounted on a Caterpillar D2 diesel tractor.

Dynamite container

Safe storage of dynamite has long been a problem for construction firms handling large quantities of the explosive. The Hunkin-Conkey Construction Co. uses two big welded steel shipping containers to store the 8,000 lb of dynamite it uses weekly on the extension of the Pennsylvania Turnpike. These 275-ft boxes (Transportainers) have a weight capacity of 6 tons. To minimize hazard of sparks from contact of shoe nails or tools with the metal floor and walls, the containers were lined with 1-in. sheathing. The boxes are weathertight and can be stored in the open. The Transportainers are produced by the Dravo Corp.

MUNICIPAL AFFAIRS

CITY BEAUTIFUL—This view of Corpus Christi, Tex., population 108,053 shows its bayfront, seawall, tree-lined boulevard, and its piers, or T-heads as they are called locally. This is the center of the city's beautification program which was a winner in the "More Beautiful America" contest sponsored by a national magazine recently. The T-heads are parks and the boulevard is lined with grass plots, palms, and oleanders—Wide World photo.



BUSINESS AS USUAL—Traffic continues to use the famous Quebec bridge while its roadway is being doubled in width. Originally, the bridge—the largest cantilever structure in the world—was designed for railway use alone, but 20 years ago the present 15-ft vehicular roadway was added. The new roadway will cover that and also the space of one railroad track, removed as unnecessary. By mid-summer a continuous 30-ft roadway for three lanes of traffic will be in operation over the 3-in.-I-beam Lak grid flooring made by the Dominion Bridge Co. Ltd. under license from U. S. Steel Corp. Dupresne Engineering Co. Ltd. is the official agent for the Ministry of Public Works. The steel work here and for the new Chaudiere River bridge on the same alignment is being fabricated and erected by Dominion Bridge Co. Ltd.

Budgets keep on rising

City budgets are still trending upward, it is shown by a survey by the Municipal Finance Officers Association of proposed municipal budgets for 1951.

More cities are using performance budgets—planning expenditures on the basis of definite work programs, and proposed appropriations continue to increase to new record heights.

"Total budgeted expenditures of the 25 surveyed cities were up 16 percent over 1950," the association said. "Some of the increase was due to higher costs because of the continuing inflationary trend, but the big increases were due to greater costs for welfare, hospitals and other institutions, or were directly or indirectly related to municipalities' constructing needed improvements."

Largest 1951 budget increases were registered by Los Angeles County, Calif., and Boulder, Colo., the former with a rise of 81 percent and the latter with an 87 percent increase over 1950. Los Angeles County's increase was due solely to increased welfare costs as a result of the transfer of responsibility for the aged and blind from the state to local governments. Boulder's rise was, in part, due to increased services, but the bulk is due to provisions for a new municipal building, expanded water facilities and other capital improvements.

New York City continues to have the largest budget of any municipality. Its 1951 budget of $1.2 billion is up 3 percent over 1950, primarily because of increased cost of welfare, hospitals and charitable institutions.

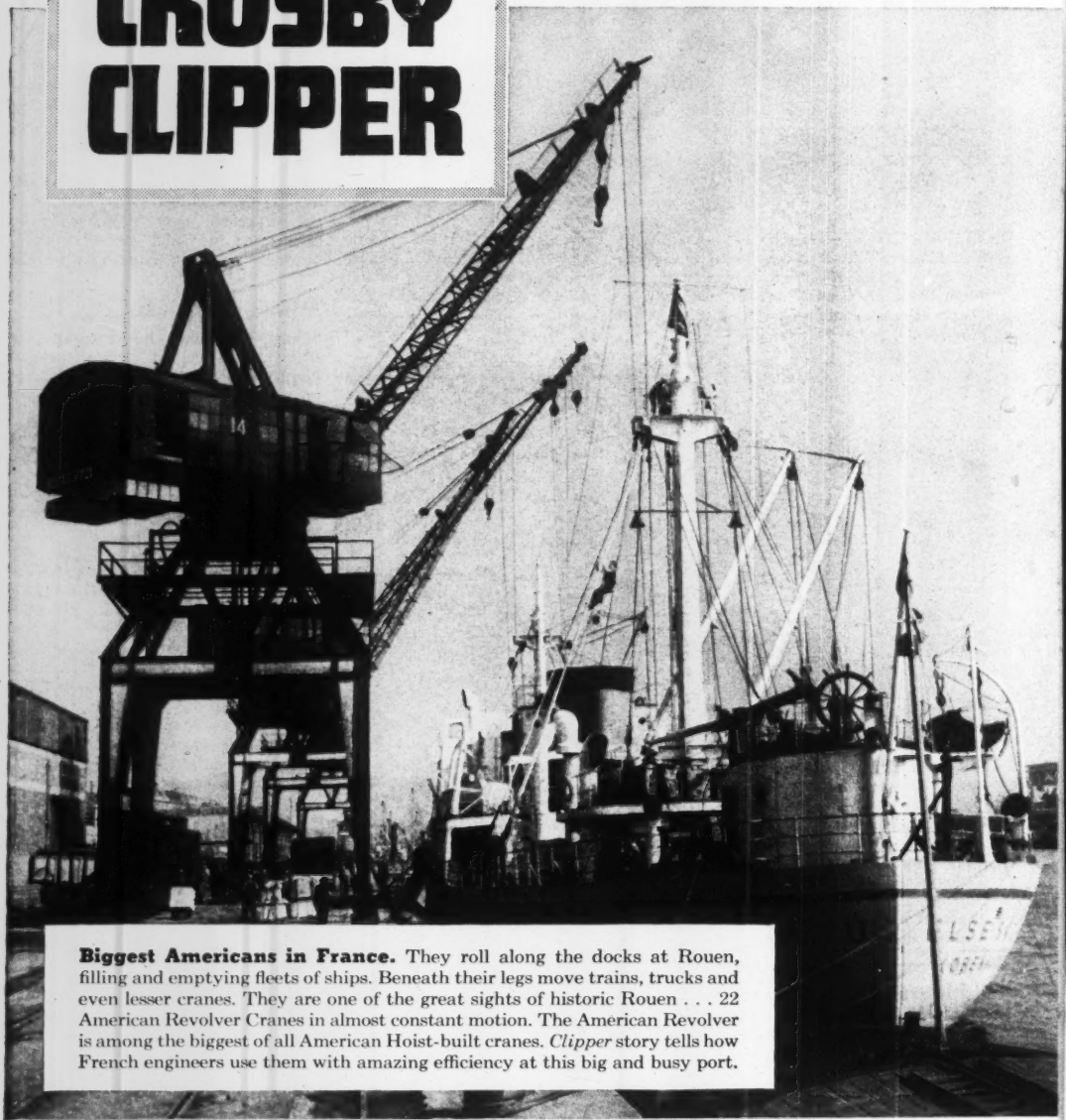
Municipal briefs

Sewage disposal and incinerator—Enlargement of the city sewage disposal plant in Erie, Pa., may include incinerator facilities for a combined operation. This was indicated in a report by Parks Director Charles Downing and Streets Director Thomas McCarty, who agreed a combined operation would require a lot of study but said they were highly impressed with such a setup in Marion, Ind. Erie's sewage plant currently is running considerably above normal capacity. An addition to the sewage plant is a foregone conclusion. To handle the present overload, sewage is given a one-hour instead of a two-hour treatment before being dumped into Lake Erie. The state has complained about this condition.

City buys waterworks—Birmingham, Ala., has completed negotiations for the purchase of the Birmingham Water Works Co. from American Water Works Co. for $19,525,000, and will issue $22,000,000 in revenue bonds to effect the purchase. The properties have a book value of about $23,000,000 and last year gross revenue was $2,300,000. An independent and non-political water board has been created. It is composed of A. C. Montgomery, Cornelius van den Berg, and Merrill E. Pratt. The present operating management will continue to function for five years. When the properties are turned over to the city it is planned to join them with the city's $7,000,000 industrial water works and to put into effect planned expansion and extensions of the entire system.

PREVIEWS
from the
CROSBY CLIPPER

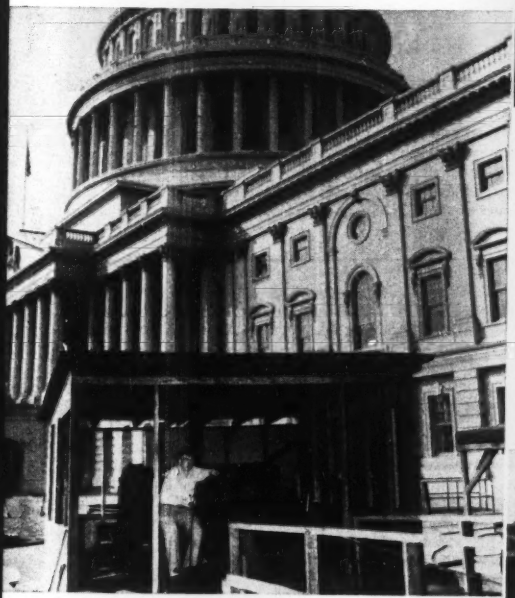
These are excerpts from stories in the current issue of American Hoist & Derrick Company's house magazine, the American Crosby Clipper. If your business involves the use of hoists, derricks, locomotive cranes, revolver cranes, Crosby Clips or other equipment in our line, why not let us put your name on the mailing list. Use coupon on right hand page, to start with the current issue.



Biggest Americans in France. They roll along the docks at Rouen, filling and emptying fleets of ships. Beneath their legs move trains, trucks and even lesser cranes. They are one of the great sights of historic Rouen . . . 22 American Revolver Cranes in almost constant motion. The American Revolver is among the biggest of all American Hoist-built cranes. *Clipper* story tells how French engineers use them with amazing efficiency at this big and busy port.

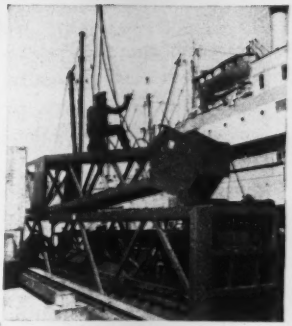
The AMERICAN HOIST line includes: Hoists • Derricks • Locomotive Cranes • Crawler Cranes • Revolver Cranes • Portable Material Elevators

No more steam. If you'd like to know how one big industrial operator cut three shifts to two, yet upped production, read the story of Taylor-Colquitt Co., in the current *Crosby Clipper*. The trick was done by throwing out a fleet of old, inefficient steam locomotive cranes, replacing with modern American DiesELectrics... a trend that's becoming a landslide among railroads and industrial companies.



Giving Congress a lift. Taxes, price controls and troops-for-Europe are questions that can't wait. So when Congress asked for a rush-rush job of repairs to the Capitol, the contractors quite naturally used American Hoists. Two Model 75's are getting the job done in jig time. For the interesting details, read the *Clipper*.

Best way to raise cane. Want to surprise your wife at breakfast? Tell her that St. Paul, Minnesota produces more sugar cane handling equipment than any other city on the globe. It's all made by American Hoist. Here, an American cane crane at New York awaits shipment to far-off Reunion island, by way of Madagascar.



Makes any man a Superman. The young Hercules shown at left is sliding open the massive steel hatch cover of a Mississippi river barge. And you could do it yourself, with his American Handiwinch. One man can carry this winch around . . . set it up almost anywhere . . . and then move loads up to 10,000 lbs.

Modernize...economize...with

American Hoist

& Derrick Company

ST. PAUL 1, MINNESOTA

3 MAIL THIS COUPON 11602

American Hoist & Derrick Co.
St. Paul 1, Minnesota

☐ Please add my name to your mailing list to receive your magazine, the American CROSBY CLIPPER.
☐ Also send more information on following equipment:

_____

Name _____
Company _____
Type of Business _____
Address _____
City _____ *State* _____

Handiwinch • Roofers Hoist • Marine Deck Machinery • Sugar Cane Handling Equipment • Car Pullers • Blocks and Sheaves • Crosby Wire Rope Clips

IDEAS
have growing pains

CLEARPRINT Technical Papers are made for that reason. Tests show that Clearprint withstands at least 6 erasures of heavy 2H pencil lines, drawn and redrawn in exactly the same position, without a ghost or trace. Likewise, it withstands at least 2 erasures of drawing ink lines .02″ in width.

CLEARPRINT'S perfect working surface invites pencil and ink lines without skipping or spreading . . . provides unrivaled strength, lasting transparency and finest printing qualities.

Specify the CLEARPRINT Paper that meets *your* technical drawing requirements. In rolls and sheets.

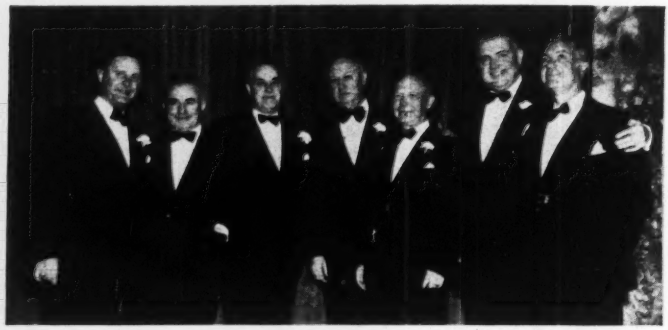
CLEARPRINT®

TECHNICAL PAPER

DEMAND IT—THERE IS NO SUBSTITUTE

SPECIFY: No. 1000H CLEARPRINT
the universally accepted technical paper
AND: No. 1025 PAPERCLOTH
the paper with cloth durability
Clearprint is also available in other weights
Ask for samples from your dealer, or write:
CLEARPRINT PAPER CO.
677 Folsom Street • San Francisco 7, Calif.

MEN AND JOBS



In this group picture taken at the recent annual dinner of the Moles, N. Y. City association of heavy construction men, are, left to right, George F. Ferris, John S. Macdonald, Ray H. Spooner, James A. Farley, Lester S. Corey, James F. Salmon and Edmund A. Prentis. Mr. Salmon is president; Mr. Farley, former Postmaster General, was made an honorary member; and Mr. Corey, president of the Utah Construction Co., San Francisco, and Mr. Spooner of Allen N. Spooner and Sons Inc., N. Y. City waterfront contractor, were recipients of awards.

Eugene C. Johnson, chief engineer for Los Angeles' Pacific Electric Railway, has retired after 45 years of service. He served as construction engineer for the Los Angeles Pacific Railroad during 1908-09, when tunnels between Temple St. and Sunset Blvd. and Temple and First streets were put through. He joined the present company in 1911 as assistant engineer and was promoted to chief engineer in 1919. The line's $4,000,000 subway terminal with its underground accesses was built under his supervision. Frederic W. Spencer succeeds Johnson as chief engineer.

Elmer H. Gruenwald has been named acting project engineer in charge of construction of Pine Flat Dam on California's King River, succeeding **J. I. Thomas,** who is now with the engineering staff of the Atomic Energy Commission's project at Hanford, Wash. Gruenwald has spent 17 years with the Corps of Engineers. During World War II he aided in the construction of eight airfields in Mexico and Guatamala. He headed construction of the Mount Morris Dam and the Onondaga Dam in New York State, and was project engineer for the Veterans Administration Hospital in Buffalo, N. Y.

Forrest E. Clary has been appointed project engineer of the Corps of Engineers' Belton Dam and Reservoir project under way on the Leon River in the Temple-Belton area of Texas. He replaces **Charles J. Kocian,** transferred to the Southwestern Division at Dallas. He received his bachelor's degree in civil engineering from the Clemson A & M College. Upon his graduation he became a civilian employee of the Corps of Engineers' Memphis District, supervising levee construction on the Mississippi River. Later he transferred to the Little Rock district, where he worked on the $11-million Clearwater Dam near Piedmont, Mo. **James P. Slater,** since January, 1949, sanitary engineer at Tulsa, Okla., has taken a similar position with the city-county health department of Omaha, Neb.

Allen D. Christensen has been made executive vice-president and general manager of the Utah Construction Co. at the San Francisco office. He is a graduate of the University of Utah and Stanford University and has spent all his working life with the company.

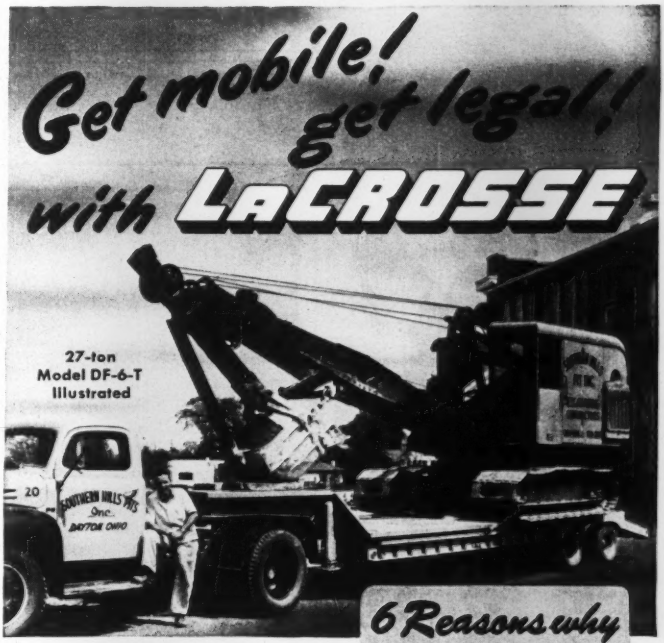
T. W. Creighton, formerly of Winnipeg, has taken over as district engineer for the British Columbia district of the Canadian Pacific Railway, succeeding **C. A. Colpitts,** who has been made engineer of track at Montreal. **K. A. Truman** of Vancouver, assistant district engineer in that area for the last six months, goes to Winnipeg as special engineer. **E. C. B. Macnabb** of Moose Jaw, formerly of Yorkton, will take over from Mr. Truman.

Robert H. Fuller, formerly contract engineer with the H. K. Ferguson Co. on foreign and domestic industrial plant design and construction, has joined Sperl, Gowen & Gregory, Inc.,

engineers and contractors, New York, as vice-president. For several years, starting in 1941, he was engaged in the design and construction of airports in Brazil for Pan American World Airways. Later he directed the maintenance and expansion of Pan American Airports in the Caribbean area.

Ole Singstad and **David G. Baillie, Jr.,** have formed a partnership for the practice of consulting engineering at 24 State St., New York City. Mr. Singstad has specialized in vehicle tunnel design and construction for the greater part of his time since 1925 when he was named chief engineer on the Holland Tunnel work at New York following the death of Clifford Holland. He served as consultant on the tunnel under the Oakland Estuary in California, the Detroit-Windsor Tunnel and Lincoln Tunnel at New York. He also was chief engineer on design of the Queens-Midtown tunnel in that city and on the early stages of the Brooklyn-Battery tunnel. Mr. Baillie was senior civil engineer on the two latter projects. Prior to that he worked on tunnel and subway projects at New York from 1919 to 1936. He is a graduate of the Polytechnic Institute of Brooklyn and served in the 115th Engineers in World War I.

G. G. Greulich, since 1933 consulting engineer to the Carnegie-Illinois Steel Corp. on the application of steel piling and other steel products to bridge and structural work, severed that connection early this year and entered into private practice as a consulting engineer with offices at 778 Osage Road, Pittsburgh 16, Pa., and 610 Du Pont Circle Bldg., Washington 6, D. C. He also will serve as representative of the Drilled-In Caisson Corp., W. E. O'Neil Construction Co., Union Metal Mfg. Co., and Western Foundation Co.



6 Reasons why

1. Up to 2000 lbs. less dead-weight per trailer!
2. Stronger, *full-length* welded frame!
3. Bigger, more powerful S-cam brakes!
4. Tougher, longer-lasting brake linings!
5. Extra wide base rims for longer tire life!
6. Stronger axles . . . smoother decks!

Impending *shortages* of new equipment—plus strict *enforcement* of laws regulating hauling on public roads—make it highly desirable for you to check your 1951 trailer requirements IMMEDIATELY. Keep *present* equipment rolling, eliminate costly delays, with *job-proved* La CROSSE low beds . . . 8 to 67-ton capacity . . . single, dual or tandem axles . . . flat, drop or tilting platforms. Also custom-built trailers for special hauling problems.

LC-16

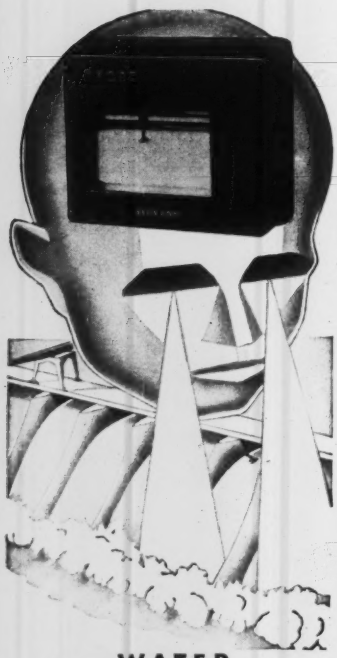
Check Today!

LA CROSSE TRAILER CORPORATION, La Crosse, Wis.

☐ Rush complete information on La Crosse trailers:
☐ Specifications ☐ Prices ☐ Delivery
☐ Send name of nearest La Crosse Distributor.
☐ We may buy a ..... ton trailer about .....
(date)

Name.....Title.....
Employed by.....
Address.....
City.....State.....

LaCROSSE
America's Favorite LOW BED TRAILER



WATER
MEASUREMENT
OR CONTROL

STEVENS

GRAPHIC, VISUAL OR
AUDIBLE REGISTRATION

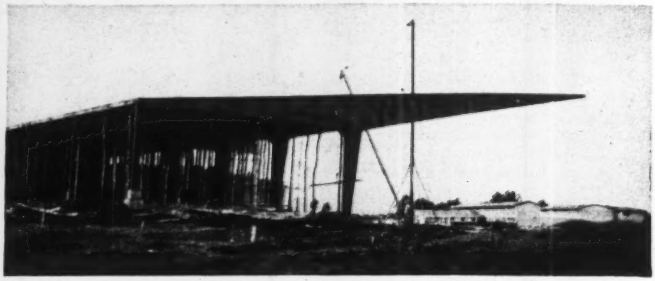
Whether you need a simple staff gage, float gage or complex remote operated recorder, there is a STEVENS instrument to meet your requirements. Water level or flow recorders for weekly service or long periods of unattended operation, direct float operated or remotely controlled; indicators, controls for alarms and pumps . . . the STEVENS line is complete in the field of water measurement and control. We also welcome inquiries concerning special problems.

Pioneers in the field of water level recording for more than 43 years, LEUPOLD AND STEVENS INSTRUMENTS, INC., have developed and perfected precision water measuring instruments of all types to meet a variety of specific needs, especially for water works, sewerage, irrigation and industrial uses.

Write for literature and information on accurate and dependable STEVENS water measuring instruments.

LEUPOLD AND STEVENS
INSTRUMENTS, INC.
PORTLAND 13, ORE., U. S. A.

DEVELOPMENTS ABROAD



LONG CANTILEVERS—Structural steel frame for supporting the glass roof over a swimming pool for the Bogota Country Club, Bogota, Colombia. Cantilevers 76 ft. Anchor span, 38 ft. long, supports a 4-in. concrete roof slab. At the front of the building, between the cantilevers, which are 20 ft apart, will be a self-supporting glass wall. Steel was fabricated and erected by Estructuras Metalicas Ltd.

BRAZILIAN FOOD PLANTS—About $3,650,000 is to be invested in these two food products plants designed by Oscar Niemeyer, Brazilian architect for the de Brito interests. The larger building is for the manufacture of "Duchen" biscuits by Produtos Alimenticios Sul America. The smaller will house the production of "Peixe" candies by Industrias Alimenticias Carlos de Brito. To be constructed of reinforced concrete, the biscuit factory will be 985 ft long and 108 ft wide, and the candy factory 328 ft long and 216 ft wide. Aim is to start manufacture early in 1952. The development will be at Vila Maria near Garulhos, one of Sao Paulo's satellite cities, and will adjoin the 4-lane section of the Rodovia Presidente Dutra—the new Rio-Sao Paulo highway. Auxiliary structures include an administration building, left, lunchroom and recreational facilities for workers in the eccentric-shaped building connected to the biscuit factory, and a power house, right.

Foreign Briefs

U. S. engineer aids India—Hugo Marck, Jr., Bureau of Reclamation engineer, has gone to India for a year's tour of duty as technical adviser on foundation explorations and treatment at Indian dam sites, particularly for Kakrapas Dam on the Tapti River, state of Bombay, and Hirakus Dam on the Mehanedi River, State of Orissa.

Ground water—A survey of critically needed ground water supplies in Saudi Arabia is presently being undertaken by Glen F. Brown and Roy O. Jackson, U. S. Department of the Interior geologists.

New Zealand housing—The government of New Zealand has allotted $50,000,000 to be used for completion during the year 1951 of 5,260 housing units.

EDUCATION and RESEARCH

Many new engineering buildings

SOUTHERN LABORATORY—The new Patterson Engineering Laboratories at Mississippi State College was completed at a cost of $450,500. This functional structure is two stories high, faced with brick, and contains 46,900 sq ft of floor space. It provides laboratory space for work with hydraulics, sanitation, soil mechanics, testing materials, aircraft engines, wind tunnel, high voltage equipment, illumination, electric power systems, steam and gas engines, and a machine shop.

Harvard—The Gordon McKay Applied Science Laboratory will be erected on Oxford Street opposite the Mallinckrodt chemical laboratory. It will provide three floors of flexible laboratory space devoted primarily to advance study and research in engineering and applied science. Construction will start this year.

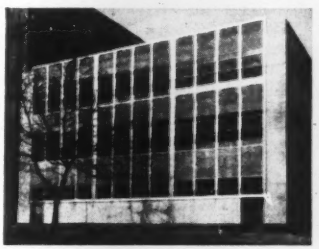
Idaho—The five departments of the University of Idaho college of engineering have begun moving into the new engineering building, just completed by H. Halvorson, Inc., of Spokane, Wash.

Yale—Yale University is to build a $5,000,000 physics laboratory in New Haven, Conn. The building has been under consideration a long time as a part of the university's long-range development program. Money for the new structure will be sought from alumni and other friends. The site is now being studied and is near other Yale natural science buildings on Prospect and Sachem streets. Douglas Orr, of New Haven, and Saarinen & Saarinen, of Bloomfield Hills, Mich., are the architects.

Florida—The first part of Unit 1 of the Engineering and Industries building at the University of Florida, Gainesville, was dedicated Feb. 3. There are 1100 undergraduates in engineering courses there and 88 taking graduate work.

Nova Scotia—A new engineering building for the Nova Scotia Technical College, now under construction, is to be completed early next fall. It is to cost $350,000, will be of three stories, and house general laboratories, testing shops, machine shop, draft rooms and a civil engineering classroom. The testing shops will be for concrete, cement, strength of materials, road materials, general physical testing of materials. With the opening of the new building, the main entrance of the college will be transferred from Spring Garden Road to Barrington Street in Halifax.

Colorado A. & M.—The college is doubling the size and capacity of its hydraulic laboratory where fundamental research has been carried out in the design of some of the world's famous dams. The expansion will be paid for out of fees the division of engineering has earned by carrying on research for industry, the Bureau of Reclamation, and the Geological Survey.



LABORATORIES BUILDING—The recently completed alumni scientific laboratories building at Drexel Institute of Technology, Philadelphia, will double the space for civil engineering work. More than 2,200 engineering students are enrolled in Drexel day classes and 1,300 for evening courses.

Evening courses set up to develop manpower

To train men and women for new jobs or bigger jobs in order to offset manpower shortages, the 76 educational institutions which are members of the Association of University Evening Colleges are offering their facilities to be used with those of industry and business.

The association offers to all of its members any training program that is developed by any college or group of colleges in cooperation with industry and business.

The main objective of the association is to meet the defense needs of industry and business by the development of individuals so that more goods can be produced and distributed in this time of emergency.

Classroom planning—The effects of physical factors of the classroom on the growth, learning capacity and well being of school children were discussed at a recent institute on classroom planning at the University of Pennsylvania. The purpose was not only to explain the importance of the classroom's physical characteristics, but also to outline how those principles can be adopted in classroom modernization or new construction.

Outdoor education—Michigan State Department of Instruction and the Michigan Conservation Department are sponsoring an outdoor educational program. Sixty teen age students will be housed at the Mill Lake Camp in the Waterloo State Recreation area. Groups will spend two weeks and participate in park improvement projects, forestry and land surveys. Technicians from the conservation and the health departments will supervise activities. Lee M. Thurston, state superintendent of public instruction, believes the programs thus developed may show the way to supplant Civilian Conservation Corps and the National Youth Administration of the 1930 period.

Illinois—Frank C. Foley, Madison, Wis., recently named research professor of geology, University of Illinois, will head the groundwater and geophysical explorations of the Illinois State Geological Survey.

WANT LABOR *Data on* FORM ERECTION ?

Recent labor data available on

High Walls
Dams
Subway
Circular Tanks
Piers
Bridge Slabs
House Foundations
Reservoirs
Schools

So light a child can lift them

CHECK COUPON FOR LABOR DATA

IRVINGTON FORM & TANK CORP.

Irvington, 25 N. Y.

☐ Send Labor Data.

Send more information. I am interested in forms for_____

Name_____

Firm_____

Address_____

NOW . . . you can use The NELWELD* method *Anywhere*

● Now, any contractor can profitably use the time-and money-saving NELWELD method of fastening — in any location. With the new Nelwelder Battery Unit, you need only a 110-v. convenience outlet for recharging during or after the day's work. Get the facts today.

*T.M. Reg. U.S. Pat. Off.

Nelson Stud Welding

DIVISION MORTON GREGORY CORPORATION

2765 Toledo Ave. Lorain, Ohio

MEETINGS

Detroit, Mich., Chapter, Inc., of General Contractors of America has elected their officers for 1951: President, Charles H. Richert, J. A. Utley Co.; first vice-president, A. S. James, O. W. Burke Co.; second vice-president, John Cooley, John Cooley Co.; treasurer, G. K. Chapman, Walbridge, Aldinger Co.

Charles Wilder has been elected president of the Watertown, N. Y., Builders Exchange. He succeeds Edward Weldon. Francis Netto was elected vice-president and Albert C. Hyde, treasurer. Don Davies continues as executive secretary. Gerald DeLancett, Clarence Burkhard, Francis Netto, James Babcock and Charles Wilder were elected directors.

Gerald W. Waldbillig, president of John B. Waldbillig, Inc., has been elected president of the Albany, N. Y., Builders' Exchange, Inc., succeeding Laurence McKinney. Fred Stutzman of Hudson River Construction Co. was named a director.

E. M. Kaake of MacDonald & Kaake, Inc., Marquette, Mich., has been elected president of the Michigan Upper Peninsula General Contractors' Association; vice-president, Herman Gundlach, Houghton; secretary, H. Alholm, Marquette; treasurer, N. Gill, Neenah, Wis.

Saulte Ste. Marie; Charles Proksch, Iron River; Erling Arntzen, Escanaba; R. S. Joiner, Iron Mountain; and William Shea, Houghton.

Lewis A. Parsons, assistant consulting engineer for Calaveras Cement Co., has been elected 1951 president of the Engineers Club of San Francisco. Other officers: vice-president, Eric S. Warner, secretary, Robert D. Dewell, treasurer, D. A. Stivers, Jr.; directors, Keith L. Davey, Harvey V. Eastling, and LeRoy F. Krusi.

William B. Fannon, Baltimore, has been elected president of the Maryland Association of Engineers. Other officers: Walter C. Hopkins, Baltimore, vice-president; Ben Dyer, Hyattsville, second vice-president; Bert Suwall, secretary; Christian Lortz, treasurer; Earle Brengle, field secretary, and directors: James H. McKay, Baltimore; Arthur W. Tayman, Cheverly; Russell Schultz, Towson, and J. Eldridge Woods, Towson.

At the recent annual convention of the National Concrete Masonry Association, R. E. Copeland, director of engineering, listed some technological developments which he believed would extend the use of concrete masonry—first, prestressing concrete masonry to make structural elements which allow use of concrete blocks for building beams; second, full-scale treatment of cinders by milk of lime; third, sintering of local materials for the manufacture of lightweight aggregates; and fourth, construction progress in concrete masonry roof and floor systems—part of which is a new method for curing blocks, first with low-pressure steam; then by air drying, re-curing, and while the units are still warm, immersing them in a waterproofing agent to keep the moisture content at a minimum.

CALENDAR

National Public Health Engineering Conference, College of Engineering, University of Florida, March 27-30.

Illinois Section, A.W.W.A., LaSalle Hotel, Chicago, Ill., March 28-30.

N. Y. State Association of Highway Engineers, Rochester, N. Y., March 28-30.

Western Concrete Pipe Association, Hotel Fresno, Fresno, Calif., March 29-30.

New York Section, A.W.W.A., Hotel Ten Eyck, Albany, N. Y., April 5-6.

California Section, AWWA, spring meeting, Mar Monte Hotel, Santa Barbara, Calif., April 6.

N. J. Society of Professional Engineers, Haddon Hall, Atlantic City, N. J., April 6-7.

Michigan Engineering Society, annual convention, University of Michigan Union, Ann Arbor, Mich., April 6-7.

Association of State Planning and Development Agencies, Sherry-Frontenac Hotel, Miami Beach, Fla., April 15-19.

Concrete Reinforcing Steel Institute, annual meeting, The Homestead, Hot Springs, Va., April 16-21.

Illinois Structural Engineering Conference, University of Illinois, Urbana, Ill., April 17-18.

American Society of Civil Engineers, Pacific Northwest Conference, Multnomah Hotel, Portland, Ore., April 27-28.

American Water Works Association, annual conference, Miami, Fla., April 29-May 4.

Materials Handling Exposition and Conference, International Amphitheater, Chicago, Ill., April 30-May 4.

California Sections American Society of Civil Engineers, The Ahwahee, Yosemite National Park, Calif., May 3-5.

Forest Products Research Society, annual meeting and International Industry Show, Convention Hall, Philadelphia, Pa., May 7-13.

Building Officials Conference of America, King Edward Hotel, Toronto, Ont., May 14-17.

Society for Experimental Stress Analysis, spring meeting, Wardman Park Hotel, Washington, D. C., May 16-18.

Pennsylvania Society of Professional Engineers, Americus Hotel, Allentown, Pa., May 18-19.

President's Highway Safety Conference, Washington, D. C., week of June 10.

OBITUARY

Wilbur F. Nash, Sr., 92, who constructed residential and commercial buildings in Washington, D. C., and who handled government contracts for clearing the old Post Office Department site and the wrecking and removal of the old arsenal, died Feb. 17.

Wesley R. Bray, 46, assistant chief engineer for the Scranton-Spring Brook Water Service Co., Scranton, Pa., died Feb. 23. He formerly served as division engineer in the Water and Sanitation Department of Puerto Rico.

George H. Weise, 70, engineer aide with the U. S. Corps of Engineers for 23 years, died at Louisville, Ky., Feb. 21.

Jay Manuel Whitham, 92, retired civil engineer, and the oldest graduate of the United States Naval Academy in the Philadelphia area died Feb. 24, at Wyndmoor, near Philadelphia. He was graduated from Annapolis in 1881. He taught engineering at St. John's College, Annapolis, Md., and at the State University of Arkansas. He retired in 1937. He was an authority on water rights, and was the author of several books and technical articles.

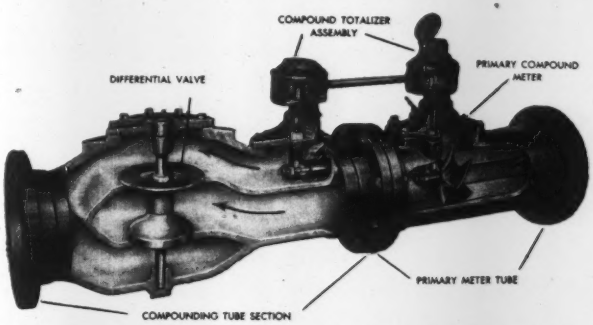
William A. Wilson, 50, of Brevard, N. C., superintendent of roads in Transylvania County, and with the North Carolina Highway Department for many years, died Feb. 27. He was a graduate of the University of Georgia.

Louis Critelli, Sr., 61, president of the Sharpsburg Construction Co. and the Canal Builders Supply Co., Pittsburgh, Pa., died Feb. 23 at Gibsonia, Pa. He came to this country from Italy, started as a bricklayer and acquired a reputation in the field of sanitation work. He was called to Washington during the N.R.A. period for consultation work in sewage planning for the government.

Dan W. Woods, 64, a structural engineer, died at Denver, Colo., Feb. 27. He attended the University of Colorado, and at one time was chief designer for the Texas and Pacific Railroad. During World War II he was with the Army Engineers, and after the war he was chief engineer for Industrial Constructors of Denver.

Charles G. Grosvenor, 62, chief construction engineer of the New Mexico highway department, died at Santa Fe Feb. 22. During his 25 years with the

SPARLING MAIN-LINE METERS



Differential valve cracks at about one pound per square inch back pressure from the smaller meter. The smaller meter measures all flows below the minimum accurate range of the larger meter. Both meters drive through ratchet clutches to a common totalizer, which thus operates with the faster turning meter.

COMPOUNDS
for Main-Lines up to 36-inch

The standard 6-inch Sparling Meter accurately registers flows from 90 gpm to over 900 gpm. To read flows as low as 15 gpm on a 6-inch main, install the Sparling COMPOUND shown above.

Pressure drop at the high flows is only 3 pounds psi. There is only one totalizer to read on the Sparling Compound, and instruments and controls can be added to suit your needs.

Sizes 6-inch to 36-inch with flanged, bell or spigot ends.

Measure Flow-Ranges as wide as 1 to 125.

Quotations and Bulletin 310 come at your request.

SPARLING METER COMPANY
INCORPORATED

LOS ANGELES 54.....Box 3277
CHICAGO 8 .....1500 South Western Avenue
SEATTLE 1 .....1932 First Avenue
NEW YORK 17.....101 Park Avenue
626 Broadway .....CINCINNATI 2
6 Beacon Street.....BOSTON 8
726 Reserve Loan Life Bldg.....DALLAS 1
66 Luckie St, N.W.....ATLANTA 3

PHOENIX BRIDGE COMPANY
Engineers—Fabricators
Erectors
Structural Steel
BRIDGES and BUILDINGS
General Office and Shops
PHOENIXVILLE, PA.
Subsidiary—Barium Steel Corporation

"GUNITE" CONCRETE
(Since 1915)
FOR • STEEL PLATE LINING • STEEL ENCASEMENT • BUILDING NEW WALLS • LINING WATER RESERVOIRS, TUNNELS AND SEWERS • PLATE LINING OF STEEL STACKS, BUNKERS, DUCTS • REPAIR OF DISINTEGRATED CONCRETE AND MASONRY • CANAL, DITCH AND DRAIN LINING
GUNITE CONCRETE & CONST. CO.
1301 Woodswether Rd., Kansas City 6, Mo.
District Branch Offices
S. T. Burton Co., 228 N. LaSalle St., Chicago 1, Ill.
George R. Lewis Co., 2036 Queen Ave. S., Minneapolis 2, Minn.
B. H. Mueller Co., 8625 Delmar Blvd., St. Louis 5, Mo.
Ole K. Olsen Co., 823 Perdido St., New Orleans, La.
Philip D. Barnard, 2036 Addison, Houston 8, Tex.
Western Steel Prod. Co., 1755 W. 13th Ave., Denver 4, Colo.

CONTROL POWER BETTER

34 Leading
Farm Machinery Manufacturers Depend On
ROCKFORD CLUTCHES
To Help Make Their Products Operate More Efficiently and Economically
Let our engineers show you how ROCKFORD CLUTCHES will give YOUR product competitive advantages.
BW

ROCKFORD CLUTCH DIVISION
BORG-WARNER
313 Catherine Street, Rockford, Illinois

ROCKFORD CLUTCHES

Since 1922
GUNITE
"Shot with air"
for CONSTRUCTION and MAINTENANCE
Experience That Counts
Write today for complete details of our services
INDIANA GUNITE & Construction Co., Inc.
226 NORTH ALABAMA STREET
INDIANAPOLIS 4
Indiana

CONTRACTORS' FIELD OFFICE TRAILER
Designed by Road Contractor
26' Aluminum Body—8' Wide
2 Rooms—2 Built-in Desks
1 Drafting Table—Built-in Letter Files—Cabinets—Closets—Drawers—etc.
Price $2845.00 f.o.b. Baltimore
TRAILER VILLAGE, INC.
8645 Pulaski Highway, Baltimore 21, Md.
Phone: Essex 2233

department he had served as acting state highway engineer.

Capt. Stuart F. Smith, 77, a retired Navy Construction Corps officer, died at Washington, D. C., March 3. He was graduated at the head of his class at the Naval Academy in 1895. He was appointed to the Construction Corps and during the first world war he served on the staff of Admiral Wm. S. Sims in Brest. He retired in 1922 but returned to active duty in the second world war and from 1942 to 1945 he was in the office of Inventions and Research.

Albert B. Dennis, 83, retired civil engineer, died at Richmond, Va., March 2.

Ray V. Rosensteel, 66, Westerville, Ohio, a structural engineer in the office of the architect at Ohio State University, died Feb. 23.

Henry Felix Gaston, 63, a consulting engineer, died March 5 in Hyattsville, Md. He served on the War Production Board during World War II. A graduate of the Carnegie Institute of Technology, he had served as a supervisory engineer in the erection of the Kansas City Railroad Station and of buildings at the University of Iowa.

Ralph O. Spofford, 60, a bridge engineer on the staff of the Massachusetts Department of Public Works, died at Lynn, Mass., March 10.

Robert H. Christy, 59, a civil engineer for the Ohio Bell Telephone Co., Cleveland, and formerly a civil engineer for the Youngstown Sheet and Tube Co., died March 8.

William D. Stuart, 65, resident engineer for the Arkansas highway department, died at Little Rock, Ark., March 1. Previously he had been with the Missouri state highway department for 23 years.

William Pope Anderson, 76, retired founder of the Ferro Construction Co., died Feb. 26 in Cincinnati, Ohio. He was a pioneer in the field of reinforced concrete construction. He founded the firm in 1902 and served as president until 1924. He was a past president of the American Concrete Institute.

Bernard P. Melton, 40, Indianapolis, Ind., civil engineer, died Feb. 22. He was a graduate of Rose Polytechnic Institute, Terre Haute, Ind., and since 1940 had been assistant chief engineer for the Ayrshire Collieries Corp. Previously he was with the Indiana Highway Department.

UNIT PRICES BID BY CONTRACTORS

Utica Street Bridge, Oswego, N. Y.

A low bid of $1,185,360.93, only .1% below the only other bid presented, was awarded the contract for the Utica Street Bridge in Oswego, New York, by the Department of Public Works, State of New York, on Dec. 20, 1950. It was 1.5% below engineer's estimated $1,202,631.90.

The bridge is to be constructed on the same spot as the existing bridge over the Oswego River, which will be completely removed. The new structure will consist of 5 continuous structural steel plate-girder spans. The 3 central girder spans are each 138 ft long, the end spans 93 ft long.

The bridge roadway will be 44 feet wide. A lighting system for the structure will be set up by the contractor.

The Delaware, Lackawanna & Western R.R. tunnel under the bridge must be maintained in operation, as well as the New York Central R.R. tracks and their property adjacent to the work. In addition to furnishing liability insurance for personal and property damage on highways up to $100,000 each, the contractor must provide personal and property damage insurance at the railroad grade crossing up to $150,000 limits for both.

Photographs of the work's progress each month must be presented to the Deputy Chief Engineer, along with a series of pictures on completion of the work. The job must be completed by Sept. 1, 1952.

Due to a labor shortage in the area and the existence of an emergency in the need of the new bridge for safety reasons, the New York State Dept. of Labor has authorized the employment of labor up to 10 hours a day, 6 days per week, on the project. Wage rates to be paid are: unskilled and semi-skilled labor, $1.25 hourly minimum; concrete and cement workers, $1.45; truck drivers, $1.25; skilled laborers, $1.50 minimum; power operators, $1.60-$2.60; ironworkers, $2.50. Overtime wage rate, time and a half.

Bidders included:

1 A. S. Wilkstrom, Inc., Skaneateles, N. Y. (Contract)	$1,185,360.93
2 Lane Construction Corp., Meriden, Conn.	1,186,535.56
Engineer's estimate	1,202,631.90

Items	Quantity	Unit prices 1 C	2
Clear & grub	ls	$5,000	$5,000
Selected borow	cy	230	1.50	3.00
Excav, unclas	cy	1,140	1.00	2.00
Trench, culv & br, substruct removal	cy	8,030	8.00	10.00
Prepare fine grade	sy	2,260	0.30	0.50
Sewer pipe, vit 8"	lf	62	1.35	2.50
VCP underdrain 6"	lf	340	1.35	2.00
Sewer p, reinf con 15"	lf	160	4.00	7.00
18"	lf	87	5.00	8.00
Cement, matr, type N	bbl	1,194	4.00	5.00
Portland, type 2	bbl	8,808	4.00	4.75
Conc for struct, Class 1A, pier & abut foot	cy	1,730	37.00	35.00
Pier shaft & abut above ft	cy	3,270	55.00	45.00
Bridge deck	cy	870	60.00	65.00
Dimension masonry	cy	9	150.00	300.00
Bar reinf for struct	lb	490,000	0.11	0.12
Struct st, Cl A	lb	105,148	0.26	0.263
Class B	lb	26,100	0.24	0.241
Class C	lb	2,208,745	0.25	0.243
Metals, miscel	lb	3,300	0.20	0.30
Found crse run-of-bank gravel	cy	1,055	2.00	3.00
Conc founda for pav	cy	575	12.00	14.00
Asph conc, typ 2A	T	775	10.00	10.50
Membrane waterpf	sy	950	2.00	2.50
Prot crse for MW	sy	950	3.20	5.50
Maint & prot of traffic	ls		6,250	6,250
Dry rip-rap	cy	90	10.00	20.00
Rem exist supstr	ls		31,250	31,250
Cofferdam	ls		37,500	37,500
St sheet piling perm	sf	370	4.00	4.00
Temporary	sf	2,800	2.50	3.00
Conc curb, typ C	lf	830	2.00	2.50
Gutter, gobble	sy	15	4.00	5.00
Cat bas, mh drop in	cy	30	90.00	75.00
Altering mh & cb	ea	2	75.00	100.00
Conc sidewalk	sy	550	3.00	4.50
Run of bank gravel fill	cy	3,080	2.50	3.50
Water main	lf	990	2.75	5.00
Stucco	sf	185	0.60	2.00
Landscaping	A	0.23	4,500	2,000
Electrical work	ls		10,100	10,500

Resurfacing highway in North Carolina

The State Highway & Public Works Commission, Raleigh, North Carolina, received 4 bids, 43% apart, for widening and resurfacing 24.4 miles of highway through Edgecombe and Halifax Counties, N. C., on Dec. 19, 1950. The low bid of $54,381.60 was 15.7% below the next to low bid.

Work must be completed in 300 working days. Minimum wage rate is $0.75 for unskilled labor. The contractor has been unable to secure workers for this wage scale, however, and his actual hiring rates are unavailable for publication.

Bidders included:

1 Nello L. Teer Co., Durham, N. C. (Contract)	$543,381.60
2 Brown Pav. Co., Lexington, N. C.	628,952.50
4 Shepherd Const. Co. Inc., Atlanta, Ga.	778,629.00

Items	Quantity	Unit prices 1 C	2
Clearing	A	17	$300.00	$100.00
Orchard	A	1	200.00	25.00
Grubbing	A	9	100.00	100.00
Orchard	A	1	50.00	25.00
Grading	mi	19,103	1,400	1,800
Excav, unclass	cy	96,800	0.30	0.22
Drain ditch	cy	6,000	0.75	0.75
Muck	cy	4,600	0.45	0.55
Borrow	cy	20,000	0.30	0.30
Overhaul, special	cy	50,000	0.06	0.05
Subgrade, reinf	cy	11,600	0.50	0.65
Bit conc binder course, Class H, Grade A	T	29,200	4.75	5.99
Grade B	T	32,300	5.00	5.99
Bit conc surface course, Cl I	T	23,500	5.30	6.27
Conc, Cl A (collar)	cy	9	60.00	100.00
RC pipe, 15"	lf	2,076	2.40	2.35
18"	lf	2,392	3.00	3.50
24"	lf	372	5.00	4.50
30"	lf	476	8.00	6.00
42"	lf	192	15.00	9.50
42" extra strg	lf	128	16.50	11.00
48"	lf	28	20.00	13.00
54"	lf	68	23.00	18.00
54" extra strg	lf	96	26.00	20.00
Bit coat cm p, typ I, 54"	lf	16	35.00	25.00
Cl pipe (sewer) 12"	lf	112	12.00	4.00
Conc inlet, junc box, manhole	cy	5	60.00	100.00
Manhole, brick mas	cy	1	50.00	100.00
Grat & frame	ea	2	50.00	50.00
Frame & cover	ea	1	50.00	50.00
Fence reset				
Barbed wire	lf	4,000	0.04	0.04
Hog wire	lf	4,000	0.07	0.07
Comb barb, hog wire	lf	7,000	0.10	0.10
Other fence	lf	400	0.20	0.20
Right of way marker	ea	225	5.00	4.50
Remov exist conc pav	sy	3,000	0.50	0.25

BUILDERS

WATER and SEWAGE WORKS EQUIPMENT...

—for metering and controlling flow of liquids, air, dry materials. For Bulletins and complete information, address Builders-Providence, Inc. (Division of Builders Iron Foundry) 390 Harris Ave., Providence 1, R. I.

BUILDERS - PROVIDENCE

MESKER PREFABRICATED SECTIONAL-TYPE STEEL BUILDINGS

Still Available

Swift Changing Conditions in TODAY'S STEEL MARKET make procurement Very Difficult!

MESKER PREFABRICATED STEEL BUILDINGS will definitely fit in with your Business Expansion Plans! May be had in any size, multiples of two feet in width, length and height. D.O.'s (defense orders) especially solicited! Write us your requirements —

GEO. L. MESKER STEEL CORP.
EVANSVILLE 8, INDIANA

CONSTRUCTION REPORTS

Bids Asked—Low Bidders—Contracts Awarded

Compiled by Business News Department—Engineering News-Record, 330 W. 42nd St., New York 18, N. Y.

ELSIE EAVES, Manager *J. A. MAHONEY, Reports* *M. R. ROESSLER, Statistics*

NEW ENGLAND

BIDS ASKED—HEAVY CONSTRUCTION

† Mass., Chelsea—SPRINKLER and VENTILATION SYS. —B.A. 3/27—Dist. Pub. Wks. Office, First Naval Dist., 495 Summer St., Boston, sprinkler and ventilation sys. in Laundry Bldg. 48, at U. S. Naval Hospital, Spec. 26157. Plans deposit $10.

BIDS ASKED—BUILDINGS

Mass., Brockton — ADMINISTRATION, etc. — B.A. 3/27 — veterans Admin., Munitions Bldg., Wash. 25, D. C., Admin. Bldg. No. 1, Admission and Treatment Bldg. 2, General Medical and Surgical Bldg. No. 3, TB-NP Bldg. No. 4, Continued Treatment Bldg. No. 5, Disturbed Bldg. No. 7, Infirm Bldg. No. 8, Kitchen Dining Hall and Warehouse Bldg. No. 20, Theater Bldg. No. 21, Recreation and Library Bldg. No. 22, Gymnasium and Swimming Pool Bldg. No. 23, Chapel Bldg. No. 24, Medical Rehabilitation Bldg. No. 25, Steel Flag Pole No. 26, Boiler House Bldg. No. 40, Radial Brick Chimney No. 41, Valve Pit and Oil Storage Tanks No. 42, Incinerator Bldg. No. 43, Station Garage No. 44, Laundry No. 45, Utility Shops No. 46, Water Pump House No. 47, Steel Water Tank and Tower No. 48, one 500,000 gal. Reservoir No. 49, Apartment No. 61, Attendants Quarters Bldg. No. 62, Connecting Corridor No. 1-3, Connecting Corridor No. 2-3, Connecting Corridor No. 3-21, Connecting Corridor No. 4 to 20-21, Connecting Corridor No. 5-23, Connecting Corridor No. 7-21, Connecting Corridor No. 8 to 7-21, Connecting Corridor No. 20-21, Connecting Corridor No. 20 to 5-23, Connecting Corridor No. 22 to 7-21, Connecting Corridor No. 23 to 7-21, Connecting Corridor No. 25 to 7-21, Veterans Admin. Hospital, Spec. 5100, Proj. 1-4050. CD 9/15/49.

R. I., Newport—HOUSING—B.A. 3/27—First Naval Dist., 495 Summer St., Boston, Mass., 52 units Housing M-25, Naval Base. $450,000. Plans deposit $15. Creer, Kent, Mather, Cruise & Aldrich, 423 Industrial Trust Bldg., Providence, engrs. and archts. CD 2/14.

† R. I., Warren—MOTOR VEHICLE STORAGE—B.A. 3/27—U. S. Eng., 51 Stanton Ave., Providence, 53x 146 ft. concrete block steel columns and trusses motor vehicle storage bldg., electrical work, drains and b. conc. driveway, No. 37-019-51-7. Plans deposit $10. CD 3/7.

Conn., Wilimantic—HOUSING—B.A. 3/38—City Housing Auth., Harrington Ave., Conn. 10-1 PHA Low rent HOUSING incl. 100 units Harrigton Ave. Plans deposit $50. CD 1/24, under LB.

SOON LETS CONTRACT—BUILDINGS

Conn., Bridgeport—SCHOOL—St. Ambrose Convent, 460 Mill Hill Ave., soon lets contract 3 story, brick, cinder block school. Plans deposit $25. J. Gerald Phelan, 211 State St., archt.

Mass., Lawrence—SCHOOL—Assumption of Blessed Virgin Parish, 216 Lawrence St., soon lets contract parochial school Bunker Hill Park and Saratoga St. CD 2/7.

LOW BIDDERS—HEAVY CONSTRUCTION

T. J. Harvey & Son, Inc., 30 Center St., Adams, Mass., Low Bidder, $121,697. Contr. A, storm sewer, NORTH ADAMS, MASS., City P. Wks. Dpt., City Hall, North Adams, Mass. Bids Feb. 28. CD 1/26.

LOW BIDDERS—BUILDINGS

▲ M. Spinella & Sons, Inc., 79 Milk St., Boston, Mass., Low Bidder, $2,962,000. HOUSING, Proj. 200-6, Rindge Ave. Exten., North Cambridge, CAMBRIDGE, MASS., City of Cambridge Housing Auth., 51 Inman St., Cambridge, Mass. Bids Mar. 1. CD 2/19.

E. J. Campbell Co., 495 Washington St., Wellesley, Mass., Low Bidder, $84,000. POWER PLANT impvs., Reformatory for Women, FRAMINGHAM, MASS., State Dpt. Correction, State House, Boston, Mass. Bids Feb. 28. CD 2/23.

A. E. Stephens Co., 1200 Main St., Springfield, Mass., Low Bidder, $877,359. SCHOOL, MANCHESTER, CONN., Town, Town Hall, Manchester, Conn. Bids Feb. 27. CD 2/14.

New England General Constr. Co., 341 State St., New Haven, Conn., Low Bidder, $750,000, Seth G. Haley SCHOOL, South St., WEST HAVEN, CONN., Town, Supt. Schools, 270 Main St., West Haven, Conn. Bids Mar. 2. CD 2/26.

CONTRACTS—BUILDINGS

M. Spinelli & Sons Co., Inc., 79 Milk St., Boston, Mass. Contract Awarded, $572,998. Proj. 121, Contr. I, HOSPITAL for Walter E. Fernald State School, WAVERLY (BR. BOSTON), MASS. State Dpt. Mental Health, 15 Ashburton Pl., Boston, Mass. Awarded Feb. 28. CD 2/20, under LB.

Arthur J. Woods, Maple St., Windsor, Conn., Owner Builds, $350,000, fifty 24x37 ft., frame ranch-type RESIDENCES, EAST HARTFORD, CONN.

▲ B. Perini & Sons, Inc., 73 Montwait Ave., Framingham, Mass. Contract Awarded, $6,287,000. Proj. 3-5, low rent HOUSING, Kensington and Hampton Sts., HARTFORD, CONN. City Housing Auth., 846 Asylum Ave., Hartford, Conn. Bids Jan. 31, awarded Feb. 20. CD 2/9, under LB.

Roncari Builders, Inc., Ahern Ave., Windsor Locks, Conn., Owner builds, $600,000, 100 HOMES, County Manor-Cold County Rd., WINDSOR, CONN.

MIDDLE ATLANTIC

BIDS ASKED—HEAVY CONSTRUCTION

† D. C., Wash.—TAXIWAY—B.A. 3/26—P. Wks. Office, Bldg. 90, Naval Air Station, Anacostia, resurf. Taxiway G at Naval Air Station, Spec. 27940. Plans deposit $10. CD 2/10/50.

New Jersey—B.A. 3/26—At Office, Joseph K. Costello, secy., The Delaware River Joint Comm., Administration Bldg., Bridge Plaza, Camden, police bldg., Linden and Sixth Sts., Camden, Contrs. 10-A, 10-B, 10-C, 10-D, 10E; new toll houses, Bridge Plaza Camden, Contrs. 13, 14, 51, 16, and 17; paving Philadelphia Bridge Plaza, portion of suspended spans, Contr. No. 21-F. Plans deposit $10 each. adv. ENR 3/15. CD 2/4/49.

N. Y., New York—B.A. 3/27—Bd. Water Supply, 120 Wall St., Contr. 426, furnishing, installing, testing electrical equip. and conductors and for installing and testing sub-station equip. furnished by the city and for testing electrical equip. installed under previous contracts for sewage treatment plant and for North St. and Neversink pumping stations (being built under Contr. 381) in Port Jervis. Plans deposit $5.

† Pennsylvania—B.A. 3/28—U. S. Eng., 24 St. and Maryland Ave., P. O. Box 1715, Baltimore 1, Md., levee closure, at junction State Hy. 14 and existing levee near southern limits of city of Sunbury, Northumberland Co., adjacent to the highway bridge over Shamokin Creek, a tributary of Susquehanna River, Serial No. CIVENG 18-020-51-13. CD 4/21/44.

† New York—B.A. About 3/29—U. S. Eng., 24 St. and Maryland Ave., P. O. Box 1715, Baltimore 3, Md., closure sill, Chenango River, at junction of Delaware, Lackawanna & Western R. R. and an existing levee on left (easterly) bank of Chenango River, near Oxford, Chenango Co., Serial No. CIVENG 18-020-51-15.

BIDS ASKED—BUILDINGS

N. Y., New York—HOUSING IMPRVS.—B.A. 3/26—New York City Housing Auth., 63 Park Row, Zone 7, street and yard imprvs., for Colonial Park Houses (Proj. No. NYC-6) in area bounded generally by Harlem River Speedway, proposed Harlem River Dr. and W. 159 St., or a line of W. 159 St. as extended in Manhattan Boro. Plans deposit $25.

N. Y., New York—NURSES SCHOOL, etc.—B.A. 3/28—Dpt. P. Wks., Municipal Bldg., Zone 7, Contr. 1, demolition, general constr. work; elevators and dumbwaiters, metal equip., top soiling and planting; Contr. 2, plumbing and kitchen equip.; Contr. 3, heating, ventilating, air-conditioning, refrigerator work; Contr. 4, electrical and lighting fixtures for Nurses' School and Residence at Bellevue Hospital. Plans deposit $50 for Contr. 1, $25 each, Contrs. 2, 3, and 4. Extended date. CD 2/19.

Md., Loch Raven—COTTAGES—B.A. 3/29—State, Dpt. P. Imprvts., 506 Park Ave., Baltimore. Zone 1, three 1 story, basmt., brick, concrete, steel Junior Group Cottages, Maryland Training School for Boys. $600,000. Plans deposit $25. Edw. H. Glidden Jr., 414 Equitable Bldg., Baltimore, Zone 2, archt. Van Rensselaer Saxe, 100 W. Monument St., Baltimore, struct. engr. Jas. Posey, 10 E. Pleasant St., Baltimore, Zone 2, mech. engr. CD 11/15.

N. Y., New York—HOUSING IMPRVS.—B.A. 3/29—New York City Housing Auth., 63 Park Row, Zone 7, topsoil and planting for Colonial Park Houses (Proj. No. NYC-6) in area bounded generally by Harlem River Speedway, proposed Harlem River Dr. and W. 159 St. or a line of W. 159 St. as extended, in Manhattan Boro. Plans deposit $25.

LOW BIDDERS—HEAVY CONSTRUCTION

Bureau Contracts & Accounts, Albany, N. Y., cancelled bids to have been opened Mar. 21, b. conc. Type 1A, misc. work 0.68 mi. Amityville Village; Broadway S.H. 1633, Amityville Village S.H. 5300, Contr. No. RC5113, Suffolk Co., NEW YORK. CD 3/9.

CONTRACTS—HEAVY CONSTRUCTION

Williams Constr. Co., Middle River, Md. Contract Awarded, $720,834, 2.747 mi. Baltimore-Washington Expressway and surf. grav. service road 2.656 mi. Contr. AA 368-9-538, Anne Arundel Co., MARYLAND. State Rds. Comn., Baltimore 2, Md. CD 1/17, under LB.

CONTRACTS—BUILDINGS

Stewart M. Muller, Inc., 47 S. Riverside Ave., Croton on Hudson, N. Y. Contract Awarded, $769,750, Dunbar Heights HOUSING, PEEKSKILL, N. Y. Peekskill Housing Auth., Municipal Bldg., Peekskill, N. Y. Bids Feb. 1. CD 2/15, under LB.

▲ Brown & Matthes, Inc., 122 E. 42 St., New York, N. Y., Contract Awarded, $1,750,000, design and construct first unit 155,000 sq. ft. FACTORY on 32 acre tract, at WYANDANCH, N. Y. Fairchild Engine & Airplane Corp., Hagerstown, Md. CD 3/5.

Matthew Leivo & Sons, Inc., Lawrence Savings & Trust Bldg., New Castle, Pa. Contract Awarded, $935,675, general constr., heating, plumbing and electrical work, HOSPITAL wing, NEW CASTLE, PA. James Memorial Hospital Bd. Directors, R. W. Rowland, pres., New Castle, Pa. Bids Feb. 9, awarded March 2. CD 1/12.

PROJECTS COVERED

Projects—By Size

Construction projects here reported cover the United States and Canada, are of these minimum sizes or larger: water supply, earthwork, waterways $34,000; other public works $60,000; industrial buildings $82,000; other buildings $300,000.

Classes of Construction

(Name in order of Listing)

Water Supply	Latin America
Sewers, Waste Disposal	Public Buildings
Bridges	Commercial Buildings
Streets & Roads	Industrial Buildings
Earthwork, Waterways	Unclassified

Stages Reported

PROPOSED WORK: Including appointment of engineers or architects.

BIDS ASKED (new announcements only). For full calendar, see also preceding issues of ENR.

LOW BIDDERS: On jobs below $500,000 value all low bidder news will be the final reports published on the projects involved except where award is not made to the low bidder. In this case, a supplementary contract award report will be published.

CONTRACTS AWARDED: Except awards to low bidders previously reported in low bidder stage.

Dates shown are of issue in which last previous report was published.

Symbols and Abbreviations Include:

†	Federal Government
▲	Project of $1,000,000 or over.
B.A.	Bids Asked
ENR	Engineering News-Record
CD	Engineering News-Record Construction Daily

SOUTH

BIDS ASKED—HEAVY CONSTRUCTION

† Mississippi—B.A. 4/4—U. S. Eng., P. O. Box 97, Memphis 1, Tenn., approx. 120,000 cu. yd. earthwork, incidental work with constr. landside berm, Levee Item No. L-620, Hillhouse, Levee Stations 96 26-97 33 in Upper Yazoo Levee Dist., Mississippi River Levees, left bank of Mississippi River in Coahoma Co., CIVENG 40-041-51-95. CD 1/25/46.

† Louisiana—B.A. 4/11—U. S. Eng., P. O. Box 60, Vicksburg, Miss., approx. 706,000 cu. yd. earthwork and 4 drainage structures for Red River Backwater Levee, Concordia Parish, CIVENG 22-052-51-145. CD 6/26/46.

BIDS ASKED—BUILDINGS

La., Haynesville—SCHOOL—B.A. 4/3—Claiborne Parish School Bd., Negro High School, Extended date. J. P. Schierer, 976 Jordan St., Shreveport, archt. CD 3/8.

SOON LETS CONTRACT—BUILDINGS

Ga., Augusta—CHURCH—First Baptist Church, c/o Scroggs & Ewing, archts., S.F.C. Bldg., soon lets contract church. CD 2/28.

La., New Orleans—PLANT—International Lubricant Corp. Southport, soon lets contract, plant near Southport, $200,000. Extended date. CD 3/9.

LOW BIDDER—HEAVY CONSTRUCTION

Clark Stewart & Wood Co., 326 Georgetown St., Lexington, Ky., Low Bidder, $120,027, est. $140,000, Contr. 1, water treatment plant**—Ruby Constr. Co., Madisonville, Ky., $56,830, est. $60,000, Contr. 2, earthwork and reservoir**—M. G. Aldridge, 1045 Patterson St., Macon, Ga., $79,886, est. $80,000 Contr. 3, transmission and distr. lines, Contr. 4, sewage collection sys. addn. and pump station, LANCASTER, KY. City, Lancaster, Ky. Bids Mar. 2. CD 1/31.

LOW BIDDERS—BUILDINGS

Smith-Whitaker, Tupelo, Miss. Low Bidder. $105,804. PLANT addn. to Stratford Furniture Co., NEW ALBANY, MISS. Union Co., New Albany, Miss. Bids Mar. 5. CD 2/15.

CONTRACTS—HEAVY CONSTRUCTION

Towles-Cline Constr. Co., Box 1617, Wilmington, N. C. Contract Awarded, $500,963, est. $400,000-500,000, traffic bound macad. b. conc. binder and surf. 13.3 mi. from point U. S. 117, approx. 1 mi. south of Wallace, south to point in U. S. 117 approx. 1.5 mi. south of Burgaw, Proj. 3780, Pender Co.; **Rea Constr. Co.**, Box 2015, Charlotte, N. C. $657,802, est. $400,000-$500,000, c. conc. 5.01 mi. U. S. 29 and 70, approx. 2 mi. west of Thomasville to point northeast of Thomasville, Davidson and Randolph Counties, NORTH CAROLINA. State Hy. & Pub. Wks. Comn. Raleigh, N. C. Bids Feb. 27, awarded March 7. CD 3/2. under LB.

CONTRACTS—BUILDINGS

Doyle & Russell, Central Natl. Bank Bldg., Richmond, Va. Contract Awarded. Approx. $100,000. WAREHOUSE and OFFICE, RICHMOND, VA. Flowers School Equip. Co., Inc., 327 W. Main St., Richmond, Va.

S. N. Nielsen Co., 3059 W. Augusta St., Chicago, Ill., Contract Awarded, $465,000, diesel engine SHOP, HUNTINGTON, W. VA. Chesapeake & Ohio R. R., L. T. Nuckols, ch. engr. Chesapeake District, 823 E. Main St., Richmond, 10, Va.

▲ **C. D. Spangler Constr. Co.**, 1933 S. Blvd., Charlotte, N. C. Contract Awarded, $6,473,000, construct, finance, manage 1,054 DWELLINGS in 296 bldgs., CAMP LEJEUNE, N. C. for Pub. Wks. Office, 6th Naval Dist., Naval Base, S. C. Edwards, Pugh & McKimmon, Vaiand & Martini, 743 W. Johnson St., Raleigh, N. C., engrs. and archts. Bids March 7. CD 2/28.

Daniel Constr. Co. Inc of Alabama, 822 7 Ave. S., Birmingham, Ala. Contract Awarded, $300,000. CHURCH, BIRMINGHAM, ALA. Canterbury-Mountain Brook Methodist Church, c/o Shaw & Renneker, archts., 2021 6 Ave. N., Birmingham, Ala. CD 8/23.

Martin Conrad, 921 Baltic St., Memphis, Tenn. Owner Builds. $750,000. 100 HOMES, PADUCAH, KY.

MIDDLE WEST

BIDS ASKED—HEAVY CONSTRUCTION

O., **Salem**—B.A. 3/30—Water Comn., Salem, pump station and filtration plant. The Chester Engineers, 210 E. Park Way, Pittsburgh, Pa. CD 3/5.

Ill., **Jerseyville**—B.A. 4/3—City, Earl Woolsey, mayor, WW imprvs., incl. developing 2 shallow wells, rehabilitation spring pumping station, booster station, filter bldg., clarifier and aerator 190,000 gal. reservoir, 53,000 lin. ft. 2- 6-in. c.i. pipe. Plans deposit $20. Russell & Axon 3, 408 Olive St., St. Louis 2, Mo., engrs. CD 2/2.

BIDS ASKED—BUILDINGS

O., **Brookfield**—SCHOOL—B.A. 3/30—Bd. Educ., Brookfield Twp. School Dist., Brookfield, Stevenson School addn. at Masury. Plans deposit $10. Hunter & Howard, 123 W. Market St., Warren, archts. CD 6/16/49.

O., **Swanton**—HIGH SCHOOL—B.A. 4/2—Bd. Educ., Swanton Village School Dist., Neil Kline, clk., Swanton high school and gymnasium. $340,000. Plans deposit $15. Werner, Taylor, Sanzenbacher & Morris, Nicholas Bldg., Toledo, archts. and engrs. CD 11/16.

▲ Ill., **East St. Louis**—HOUSING—B.A. 4/9—St. Clair County Housing Auth., James E. Hayes, exec. dir., 6 and Ohio Ave., East St. Louis, brick, concrete asbestos siding, etc., housing (A) 300 unit, John De Shields Homes; (B) 300-unit Roosevelt Homes; (C) 100-unit Villa Griffin project, also 1 story community bldgs. Charles B. Spencer, 929A Missouri Ave., archt. CD 12/29, under LB.

Ill., **Des Plaines**—RESIDENCES—Bids Asked—Kimball Hill Assocs., 716 Lee St., 35 residences. $350,000.

▲ Ill., **Matteson**—HOMES—Bids Asked—Jos. W. O'Connor, 10659 S. Western St., Chicago, Zone 43, 120 homes. $1,000,000. Thos. Cunningham, 7543 N. Western St., Zone 45, archt.

LOW BIDDERS—HEAVY CONSTRUCTION

H. E. Miller, Columbus, O., Low Bidder, $41,192. L pipe lines***Thompson Conie Co., 1340 Windsor St., Columbus, O. $28,625, tower and tank fdn.***Pittsburgh-Des Moines Co., Neville Island, Pittsburgh, Pa., $177,-800, furnishing, erecting tank and tower for water supply north of Zollinger Rd. between Tremont Rd. and Northwest Blvd., UPPER ARLINGTON, O. City Comrs., Upper Arlington, O. CD 12/26.

L. G. Arnold, Inc., Eau Claire, Wis. Low Bidder, $191,-371, Contr. 1, structures B-67-6 and B-67-5, The Hartland-Pewaunee-Milwaukee Rd., C.T.H. "SS" Separation and C.M.St.P. & P. R. R. Grade separation, U. S. Hy. 16, Projs. F 06-1 (25 and FG 06-1 (26) Waukesha Co., WISCONSIN. State Hy. Comn., Madison, Wis. Bids Mar. 6. CD 2/13.

▲ **J. W. Craig Co.**, 1814 N. E. California St., Minneapolis, Minn., Low Bidder, $94,388, b. conc. 3.55 mi. the Depere-Green Bay and USH 41-Depere Rd., S. T. Hys. 57 and 32 and U. S. Hy. 41, Proj. T 02-5 (6) and T 03-2 (10) Contr. 1, Brown Co.;- $132,063, bit. surf., single aggregate type, 12.694 mi. Merrillan-Neillsville Rd., S. T. Hy. 95, Proj. T 053 (1), Contr. 4, Clark Co.***Dixon Constr. Co., Albany, Wis., $203,-665, grading, draining 7.428 mi. U. S. H. 51—Emer-

Finish the job faster

WITH **Ramset** FASTENING SYSTEM

For fastening into steel, concrete, other hard processed building materials, RAMSET FASTENING SYSTEM has proved its ability to make important savings in time and money.

Less than a minute is needed to set a specified drive pin or threaded stud with the powerful RAMSET FASTENING TOOL. Holding power is equal to or greater than that obtained by old-fashioned methods. Work moves faster, one crew makes way for the next in less time—and your buildings are ready for occupancy far quicker.

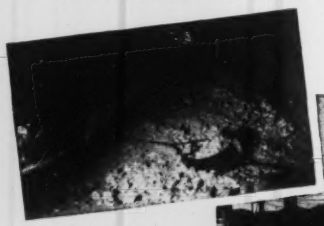
From basement to roof, in thousands of large and small buildings, the *engineered* RAMSET SYSTEM has demonstrated its economies in time and money. Ask your local RAMSET Specialist for details and for help in selecting fastening work for which *Ramset* is especially advantageous. Or, write us for special Architectural Folder, showing typical applications and fastener specification.

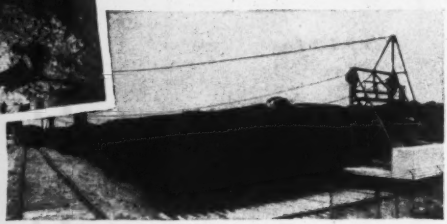
Ramset Fasteners, Inc., 12117 Berea Road, Cleveland 11, Ohio.

Member of Producers Council

Ramset Fastening System
Pioneer in powder-actuated fastening

How to Cut Your Bulk Storage Costs with a SAUERMAN POWER SCRAPER





(Above) Muriate stored in long building is reclaimed by Sauerman Scraper.

(Right) Sauerman scraper powered by 100 h.p. motor handles 100 tons of coal an hour.

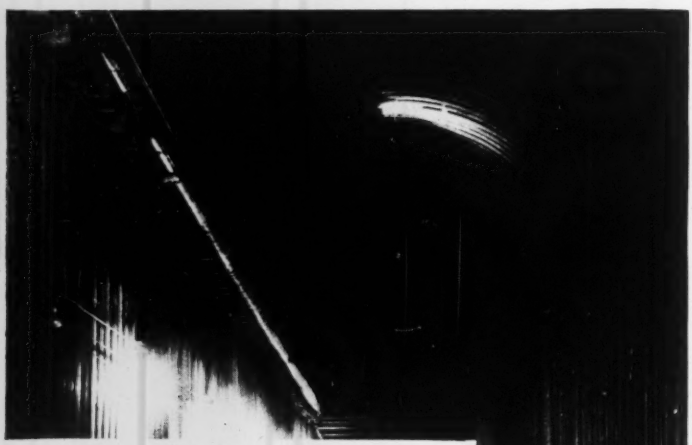
Write for this free book on Bulk Storage

All kinds of bulk materials are stored and reclaimed successfully at great savings in manpower and overhead by using Sauerman Power Drag Scrapers. The storage may be in the open or under cover, the daily capacity required may be a hundred tons or many thousand tons, the available space may be just a large bin or a ground area of many acres—in every case Sauerman engineering provides the correct machine to meet all requirements satisfactorily and economically.

Even the largest Sauerman machine can be controlled by one man. Initial cost is reasonable, upkeep simple and power consumption moderate.

SAUERMAN BROS., Inc.

532 S. Clinton St. Chicago 7, Ill.



Adaptable to all types of ground conditions

COMMERCIAL STEEL SUPPORTS

Through rock, clay, sand or moving ground you can now tunnel faster, at lower costs and with complete safety with Commercial Steel Supports . . . The accompanying illustration is typical, as it shows the installation of Commercial Steel Supports at one foot centers through moving ground . . . These easy-to-install supports are available in every size and radii to meet your specific conditions. Write for details.

THE COMMERCIAL SHEARING AND STAMPING CO.

YOUNGSTOWN 1, OHIO

ald Grove Rd. U. S. Hy. 14, Proj. G 014-2 (12), Rock Co.***Hartong & Co., La Grange, Ill., $346,449, bit. surf. single aggregate type 9.574 mi. Monroe-Monticello Rd., S. T. Hy. 69, Proj. T 012-1 (2), Contr. 3, Green Co.***Pane & Dolan of Wisconsin, Inc., 735 N. Water St., Milwaukee, Wis., $319,650, b. conc. 7 mi. The S. T. H. 20-North County Rd., U. S. 45, Proj. T 0806 (1), Contr. 1, Racine Co.***White Consolidated, Inc., 1735 W. Fullerton Ave., Chicago, Ill., $187,248, b. conc. 9.17 mi. the Sheboygan-North Co. Line Rd., U. S. Hy. 14, Proj. T 01-3 (7), Contr. 1, Sheboygan Co.***Arrow Petroleum Co., Forest Park, Ill., $506,565, b. conc. 18.19 1 mi. Black Creek-North County Line and South County Line Bonduel Rd., Proj. F 09-1 (18) and F 09-1 (19), S. T. Hys. 45 and 55, Contr. 2, Outagamie and Shawano Counties***Alexander Constr. Co., 4641 Hiawatha Ave., Minneapolis, Minn., $187,252, b. conc. pavement and bit. surf. single aggregate type 13.851 mi. Augusta-Fairchild and Augusta-Cadott Rds., U. S. Hy. 12 and S. T. Hy. 27, Proj. T 06-4 (13) and T 057 (1), Contr. 1 and 2, Eau Claire Co.***Megarry Bros., St. Cloud, Minn., $169,991, bit. surf., single aggregate type, 12.609 mi. New Richmond-East Junction U. S. H. 63 Road, S. T. Hy. 64, Proj. F 011-1 (30) Contr. 1, St. Croix Co., WISCONSIN State Hy. Comn., Madison, Wis. Bids Mar. 6. CD 2/13.

LOW BIDDERS—BUILDINGS

Weinstein Constr. Co., 573 E. Talmadge St., Akron. Low Bidder. $498,600. general constr. CITY HALL, CUYAHOGA FALLS, O. City, John S. Lowe, service dir., Cuyahoga Falls, O. Bids Feb. 26. CD 2/13.

CONTRACTS—HEAVY CONSTRUCTION

L. & B. Constr. Co., 1118 Home St., Akron, O. Contract Awarded. $34,340. install water mains in various streets. AKRON, O. City Bd. Control, Municipal Bldg., Akron, O. Wendell LaDue, city water supt. Bids Feb. 13, awarded Feb. 19.

W. L. Johnson Constr. Co., 50 Broadway, Toledo, O. Contract Awarded. $147,375, force mains, 14 in. transite pipe from pump. stations to connection with Toledo sewers; **Mosier Constr. Co.**, Fremont, O. $79,324, pump. stations on Jennings and Colony Rds., ROSSFORD, O. Village, Charles Appt, mayor, Rossford, O. Bids Feb. 20. CD 2/1.

Tri-County Electric Co-operative, Inc., C. Glenn Jones, pres., 1106 Main St., Mt. Vernon, Ill. Own forces. $205,000. 71 mi. new rural distr. lines, 28 mi. tie lines, etc. Proj. Illinois 41P Jefferson, ILLINOIS. Drazen & Assocs., 8135 Forsyth Blvd., Clayton, St. Louis, 24, Mo., engrs.

R-W. Constr. Co., 4831 W. State St., Milwaukee, 8, Wis., Contract Awarded. $67,523. sewers in W. Custer Ave., MILWAUKEE, WIS. City, City Hall, Milwaukee, Wis. Bids Mar. 1, awarded Mar. 5. CD 2/27.

CONTRACTS—BUILDINGS

Ludwig Zahn, Mansfield, O., Contract Awarded. Approx. $752,000. general constr. 48-bed HOSPITAL addn., ASHLAND, O. Bd. Trustees, Samaritan Hospital, Ashland, O. Awarded Feb. 15. CD 2/9/50.

George J. Murphy Constr. Co., 519 Belmont Ave., Youngstown, O., Contract Awarded. Approx. $300,000. 1 story, bsmnt., brick CHURCH-SCHOOL, Route 224, BOARDMAN near Youngstown, O. St. Charles Church, Rt. Rev. Msgr. John L. Bardon, Boardman, O. CD 9/28.

S. B. Sweeterman Co. Inc., 11 W. Monument St., Dayton, O. Owner Builds. Approx. $300,000. 20 HOMES, Wilmington Pike, north of Patterson Rd., DAYTON, O.

A. P. Ziegle Co., 40 Macy Ave., Dayton, O. Owner Builds. Approx. $300,000. HOUSES, 18 single dwellings Catalpa Dr. and Woodway Ave., DAYTON, O.

Bacon Constr. Co., Inc., 2634 Taft Ave., Youngstown, O. Contract Awarded. Approx. $330,000. 2 story, bsmnt., 136x190 ft. St. Matthias SCHOOL, on Shady Run Rd. YOUNGSTOWN, O. St. Matthias Parish, c/o Rev. John Hamrak, Shady Run Rd., Youngstown, O. Myron N. Goodwin, Union Natl. Bank Bldg., Youngstown, O. archt.

Herman Reiff Co., Bluffton, Ind. Contract Awarded. $217,538, 200x248 ft. FACTORY, on 15-acre tract at southeast edge of BLUFFTON, IND. Franklin Electric Co., Bluffton, Ind.

Wm. P. Jungclaus Co., 825 Massachusetts Ave., Indianapolis, 4, Ind., Contract Awarded. $856,650. general constr. 2 story MEMORIAL HOSPITAL WINGS and 1 story HEATING PLANT all brick rein.-con., COLUMBUS, IND. Bd. Comrs. Bartholomew Co. Court House, Columbus, Ind. Bids Jan. 20, awarded Mar. 5, CD 1/31, under LB.

L. A. Marconi Co., Inc., 767 N. Milwaukee St., Chicago, 22, Ill. Contract Awarded. $250,000. FACTORY, CHICAGO, ILL. G. M. Laboratories, Inc., 4326 N. Knox St., Chicago, 41, Ill. Jos. M. Bagnuolo & Assoc., 221 N. LaSalle St., Chicago, 1, Ill., archts. Awarded Feb. 26.

A. J. Siegel, 5476 Hyde Park Blvd., Chicago, 15, Ill. Contract Awarded. $100,000. FACTORY, CHICAGO, ILL. Way Paper Products Co., 4235 43 St., Chicago, 32, Ill. A. Epstein & Son Co., 2011 Pershing Rd., Chicago, 9, Ill., archts. Awarded Feb. 23.

Ragnar Benson, Inc., 4744 W. Rice St., Chicago, 51, Ill. Contract Awarded. $200,000. FACTORY, DES PLAINES, ILL. Hannifin Corp., Wolf Rd. and Chicago & North Western R.R., Des Plaines, Ill. Victor L. Charn, 4744 W. Rice St., Chicago, 51, Ill., archt. Awarded Mar. 1.

Jezo Constr. Co., 7232 W. Greenfield Ave., West Allis, 14, Wis. Contract Awarded. $593,412. general contract ADMINISTRATION and DORMITORY bldg. at House of Correction, in Franklin, MILWAUKEE, WIS. Milwaukee Co., Court House, Milwaukee, Wis. Bids Feb. 9, CD 2/19, under LB.

Felts & Jack Constr. Co., Inc., 123 E. Main st., Fort Wayne, Ind. Contract Awarded. GRAIN TERMINAL ELEVATOR, first 500,000 bu. unit, 2½ mi,

southeast of Ottawa Lake, near Ohio boundary line. OTTAWA LAKE, MICH. Michigan Elevator Exchange, 221 N. Cedar St., Lansing, Mich. Awarded Mar. 5.

WEST OF MISSISSIPPI

BIDS ASKED—HEAVY CONSTRUCTION

† **Kansas**—B.A. On or About 4/6—U. S. Eng., 601 Davidson Bldg., Kansas City 8, Mo., levee and appurtenances, Argentine Unit, Kansas City's Flood Control Proj.; located in Kansas City, Kan., CIVENG 23-028-51-91.

† **Colorado**—CABLE FAULT LOCATOR, etc.—B.A. 4/17—Bureau Reclamation, Bldg., 1-A, Denver Federal Center, Denver, Colo., furnishing, del. f.o.b. cars shipping point or f.o.b. cars Loveland, Colo., cable fault locator, proof tester, cable fault test set, motor-driven megger test set, etc. Adams Tunnel cable circuit, Colorado Big Thompson Proj.; Spec. DS-33490. L. N. McClellan, ch. engr.

SOON LETS CONTRACT—BUILDINGS

Mo., St. Louis—FACTORY—Lewis-Howe Co., 319 S. 4 St., Zone 2, soon lets contract 5 story, rein.-con., L-shaped, 45,000 sq. ft. factory to mfg. Tums and NR tablets, S. 4 St. between Clark Ave. and Spruce St. Otto E. Heinicke & Co., 122 N. 7 St., Zone 1, struct. engrs. Widmer Eng. Co., 122 N. 7 St., Zone 1, archts.

Mo., St. Louis—DIAL TELEPHONE EXCHANGE—Southwestern Bell Telephone Co., 1010 Pine St., Zone 1, soon lets contract 2 story top addn. to 2 story, 110x142 ft. brick, rein.-con. Parkview dial telephone exchange, altering existing bldg., 6214 Delmar Blvd. C. E. Overbeck, 1817 Telephone Bldg., archt. G. J. Vande Steeg, 1010 Pine St., Zone 1, ch. engr.

LOW BIDDERS—HEAVY CONSTRUCTION

Paulsen Concrete Co., 401 Iowa Theatre Bldg., Cedar Rapids, Ia. Low Bidder, **$592,000**, general constr. airport administration bldg., 900,000 gal. storage reservoir, shop, turbine fire pump, pump house addn., piping, etc., concrete paving, sidewalks, and two 10-stall hangars; **R. P. Mathews Co.**, 1200 Ellis Blvd. N.W., Cedar Rapids, Ia., **$81,000**, mechanical work, CEDAR RAPIDS, IA. City Edgar Rapids Airport Comn., Cedar Rapids, Ia. Bids Feb. 28. CD 2/14.

LOW BIDDERS—BUILDINGS

Koch-Schroeder Constr. Co., 19 and Frederick Sts., St. Joseph, Mo. Low Bidder, **$337,918** base or **$280,518** alternate, 1 story, brick, concrete SCHOOL, KENNETT, MO. Kennett School Dist. 9, Bd. Educ., Dr. J. C. Mills, pres., Kennett, Mo. Ernest T. Friton, Security Bldg., St. Louis 2, Mo., archt. Bids Feb. 20.

CONTRACTS—HEAVY CONSTRUCTION

† **W. C. Maxwell**, 4022 Silver St., Kansas City, Mo. Contract Awarded, **$95,000**, rebuilding transportation bldg. at Olathe Naval Air Station, OLATHE, KAN. Pub. Wks. Admin., Ninth Naval Dist., Great Lakes, Ill. CD 2/15.

W. E. Steelman, 2800 N. E. 4 St., Oklahoma City 4, Okla. Contract Awarded, **$68,566**, est. $71,420, grading, paving roads at Lake Overholser, OKLAHOMA CITY, OKLA. City, City Hall, Oklahoma City 2, Okla. Bids Feb. 27. CD 2/20.

Dallas Co., Court House, Dallas, Tex. Force Account, $95,000, general repairing, reconditioning roads in Road Dist. 2; **$115,000**, Road Dist. 3, DALLAS, TEX. Jack Davis, Dallas, Tex., co. engr. CD 2/27/50.

Galveston County Water Control & Imprvt. Dist. 1, Charles H. Garner, Court House, Galveston, Tex. Own Forces, **$41,000**, addnl. water lines, near Dickinson, GALVESTON, TEX.

Galveston County Water Control & Imprvt. Dist. 1, Charles H. Garner, Court House, Galveston, Tex. Own Forces. Approx. **$70,000**, sanitary sewer lines, near Dickinson, GALVESTON, TEX.

City, Rio Grande City, Tex. Own Forces, **$45,000**, WW, lines, some rehabilitation, RIO GRANDE CITY, TEX.

City, Rio Grande City, Tex. Own Forces, **$70,000**, sanitary sewer lines, RIO GRANDE CITY, TEX.

City, Rosebud, Tex. Own Forces, **$35,000**, WW, ROSEBUD, TEX. CD 3/16.

CONTRACTS—BUILDINGS

L. O. Stocker Co., 3928 Lindell Blvd., St. Louis 8, Mo. Contract Awarded, 1 story, 192x392 ft., brick, steel mfg. PLANT on Hy. 100 near city limits, WASHINGTON, MO. Washington Metal Products Co., c/o contractor, Edw. J. Lawlor, 3928 Lindell Blvd., St. Louis 8, Mo., archt.

Ellis-Nicholson & Cramer, Inc., Hightower Bldg., Oklahoma City 2, Okla. Contract Awarded. Approx. **$750,000**. EDUCATIONAL BLDG., OKLAHOMA CITY, OKLA. First Baptist Church, 11 and Robinson Sts., Oklahoma City, Okla. CD 11/22.

C. B. Cotes Constr. Co., Abilene, Tex. Contract Awarded, **$187,000**, maintenance SHOP, ABILENE, TEX. Coca-Cola Bottling Co., Abilene, Tex. Awarded March 7. CD 3/5.

Miller & Miller Motor Freight Lines, Wichita Falls, Tex. Own Forces, **$88,500**, FREIGHT TERMINAL, DALLAS, TEX. John A. Perkins & Assoc., 2203½ Cedar Springs Rd., Dallas, Tex., archts. CD 1/5, under LB.

South Park Corp., 4660 Holmes Rd., Houston, Tex. Own Forces, **$390,000**, 56 HOMES, HOUSTON, TEX. CD 3/5.

W. G. McMillan, 1109 Avenue E, Lubbock, Tex. Contract Awarded, **$512,000**, STUDENT UNION, LUBBOCK, TEX. Texas Technological College, Lubbock, Tex. Bids Feb. 19, awarded March 6. CD 3/8, under LB.

FAR WEST

BIDS ASKED—HEAVY CONSTRUCTION

† **Washington**—B.A. 3/29—Bureau Reclamation, Dpt. Interior, Bldg. 1-A, Denver Federal Center, Denver, Colo., furnishing, del. f.o.b. cars shipping point or f.o.b. cars Othello, fixed-wheel gate for headworks, Potholes, East Canal, Columbia Basin Proj.; Spec. DS-3341. L. N. McClellan, ch. engr.

† **California**—SWITCHBOARD, etc.—B.A. 4/5—Bureau Reclamation, Dpt. Interior, Bldg. 1-A, Denver Federal Center, Denver, Colo., furnishing, del. f.o.b. cars shipping point or f.o.b. cars Strathmore, one motor-control switchboard and one distribution switchboard for Pumping Plant L-4, Lindmore Irrigation District, Central Valley Proj., Spec. DS-3339. L. N. McClellan, ch. engr.

† **California**—TURBINES—B.A. 4/12—Bureau Reclamation, Dpt. Interior, Bldg. 1-A, Denver Federal Center, Denver, Colo., furnishing, del. f.o.b. cars shipping point or f.o.b. cars Roseville, Calif., hydraulic turbines for Folsoim Power Plant, Central Valley Proj., Spec. DS-3344. L. N. McClellan, ch. engr.

† **Idaho**—B.A. 4/12—U. S. Eng., 4735 E. Marginal Way, Seattle, 4, Wash., design, mfg. and installation three 15,800-va generators for Albeni Falls power plant, Inv. No. CIVENG 51-43, Priest River. CD 9/12/44.

LOW BIDDERS—HEAVY CONSTRUCTION

Walsh Constr. Co., 785 Market St., San Francisco, Calif. Low Bidder, **$876,859**, sewage treatment plant, SANTA ROSA, CALIF., City, City Hall, Santa Rosa, Calif. Bids Mar. 5. CD 2/1.

CONTRACTS—BUILDINGS

Gallatin Fanchos Co., 6338 Wilshire Blvd., Los Angeles, Calif., Owner builds, **$562,600**, 92 frame, stucco DWELLINGS, DOWNEY, CALIF. Wm. M. Bray, 5670 Wilshire Blvd., Los Angeles, Calif., archt.

Halper Constr. Co., 739 N. Highland Ave., Los Angeles, Calif. Contract Awarded, **$320,000**, 40 frame, stucco DWELLINGS in RIVERA, CALIF. Gilbert Investment Co., 739 N. Highland Ave., Los Angeles, Calif. H. C. Light, 7551 Melrose Ave., Los Angeles, Calif., archt.

ALASKA

LOW BIDDERS—HEAVY CONSTRUCTION

▲† **Manson Constr. & Engr. Co.**, 821 Alaskan Way, and **Osberg Constr. Co.**, 1132 N. 128 St., both Seattle, Wash. and **Halvorson Contractors**, Ziegler Bldg., Spokane, Wash. Low Bidder. **$1,936,629**, clearing, grubbing, grading, bridges and drainage, 16.52 mi. Seward-Anchorage Hy, Sect. A2,B3, Units 1 and 2, 12.1 to 14.8 and 18.1 to 33, ALASKA, Bureau Pub. Roads, Dpt. Commerce, Juneau, Alaska. Bids March 6. CD 2/21.

LOW BIDDERS—BUILDINGS

▲† **Carson Constr. Co.**, Box 1153, Helena, Mont. Low Bidder, **$1,333,379**, est. $1,200,000. 5 story bsmnt., rein.-con. territorial OFFICE. Proj. No. 50-A-7, JUNEAU, ALASKA. Dpt. Interior, Office of Territories, Alaska P. Wks., Juneau, Alaska. Bids March 5. Foss & Malcolm, Juneau, archts.

CANADA

BIDS ASKED—HEAVY CONSTRUCTION

Ont., Brampton—B.A. 4/2—J. Galway, town clk., Brampton, 12- to 21-in. sewers in Main St. Approx. $75,000. J. F. MacLaren Assocs., 705 Yonge St., Toronto, engrs.

BIDS ASKED—BUILDINGS

Ont., Hamilton—FOUNDATIONS—B.A. 3/29—S. M. Connolly, engr. Central Mortgage & Housing Corp., 395 Fleet St. W., Toronto, permanent foundation walls under approx. 449 existing houses and dividing about 197 double wood sheds, Approx. $450,000. Plans deposit $50. CD 6/19/45.

▲ **N. S. Sydney**—HOSPITAL—B.A. 4/3—Cape Breton County Hospital Bd., Court House, 330-bed mental hospital. $1,500,000. C. D. Davidson & Co., 95 Dresden Row, Halifax, archts.

Ont., Hamilton—FOUNDATION WALLS, etc.—B.A. 4/4—S. M. Connolly, engr., Central Mortgage & Housing Corp., 395 Fleet St. W., Toronto, permanent foundation walls, under approx. 424 existing houses and dividing about 175 double wood sheds, Approx. $450,000. Plans deposit $50. CD 6/19/45.

LOW BIDDERS—BUILDINGS

Hughes Constr. Co. Ltd., 365 Rogers Rd., Toronto, Ont. Low Bidder, Approx. **$300,000**, Anthony Road SCHOOL, TORONTO, ONT. First Township Area of North York, 7 Kenneth Ave., Toronto, Ont. Bids Mar. 5. CD 2/23.

J. P. Morin, Engr., 528 Notre Dame St., Cap de la Madeleine, Que., Low Bidder, Approx. **$603,000**, rein.-con. frame, stone, CHURCH and PRESBYTERY, CAPE DE LA MADELEINE, QUE. Parish of Ste. Madeleine Du Cap, Rev. W. Soucy, cure, Cape De la Madeleine, Que. Bids Mar. 1. CD 2/23.

CONTRACTS—HEAVY CONSTRUCTION

W. C. Breman Contg. Co. Ltd., 400 Gage Ave. N., Hamilton, Ont. Contract Awarded, Approx. **$800,000**, three-unit group buildings at R.C.A.F. Station, incl.

USE THE WORLD'S BEST at NO EXTRA COST

1. CASTELL DRAWING 9000
2. CASTELL LOCKTITE REFILL HOLDERS 9400—Black or Colored
3. CASTELL IMPORTED REFILL LEADS 9030

These encompass every mood of genius for drawing, drafting, tracing, sketching, blueprinting, etc.

• Premium products at regular prices. See your dealer today.

AW FABER-CASTELL PENCIL COMPANY INC NEWARK N.J.

252-man barrack block, control, control tower and unit supply bldg., CENTRALIA, ONT. Defence Constr. Ltd., 395 Fleet St., W., Toronto, Ont. Bids Feb. 21. CD 2/6.

CONTRACTS—BUILDINGS

▲ **R. E. Stewart Constr. Corp.**, 268 Wellington St. S., Sherbrooke, Que., Contract Awarded, Approx. $1,200,000, BARRACK BLOCK, combined mess, fire hall and supply bldg. at R.C.A.F. Station, BAGOTVILLE, QUE. Defence Constr. Ltd., 1247 Guy St., Montreal, Que. Bids Feb. 9. CD 1/19.

Marwell Constr. Co., Ltd., 410 Seymour St., Vancouver, B. C., Contract Awarded, $659,000, rein.-con. SCHOOL, WHITEHORSE, YUKON TERRITORY. Comr. Yukon Territory, J. E. Gibben, Dawson, Yukon Territory. Bids Feb. 15, awarded Mar. 6. CD 1/15.

AMERICANS ABROAD

CONTRACTS—HEAVY CONSTRUCTION

† **North Atlantic Constructors** (Peter Kiewit Sons & Co.; Condon-Cunningham Co.; S. J. Groves & Sons Co., and Al Johnson Constr. Co.) 61 Broadway, New York, N. Y. Contract Awarded, off shore work, UNDISCLOSED LOCATION. U. S. Eng., North Atlantic Div., 61 Broadway, New York, N. Y. Metcalfe & Eddy, Statler Bldg., Boston, Mass., engrs. Alfred Hopkins & Assoc., 415 Lexington Ave., New York, N. Y. archts.

† **Fluor Corp.**, 176 Broadway, New York 7, N. Y. Contract Awarded, airfield, LOCATION-UNDISCLOSED. U. S. Eng., North Atlantic Div., 90 Church St., New York 7, N. Y.

† **Metcalf-Hamilton & Grove, Shepherd, Wilson & Kruge, Inc.**, 67 Broadway, New York 6, N. Y., Contract Awarded, new airports and exten. existing airports, LOCATION-UNDISCLOSED. U. S. Eng., North Atlantic Div., 90 Church St., New York 7, N. Y.

† **Atlas Constructors**, 42 Broadway, New York 4, N. Y. Contract Awarded, airfields, LOCATION-UNDISCLOSED. U. S. Eng., North Atlantic Div., 90 Church St., New York 7, N. Y.

† **Crow, Steers & Shepherd**, 176 Broadway, New York 7, N. Y. Contract Awarded, airfield extens., LOCATION-UNDISCLOSED. U. S. Eng., North Atlantic Div., 90 Church St., New York 7, N. Y.

† **North Atlantic Constructors**, 61 Broadway, New York 6, N. Y., Contract Awarded., misc., construction, LOCATION-UNDISCLOSED. U. S. Eng., North Atlantic Div., 90 Church New York 7, N. Y.

† **Metcalf & Hamilton**, 718 E. Armour St., Kansas City, Mo. and **Kansas City Bridge Co.**, 926 Broadway, Kansas City, Mo. Contract Awarded, air bases, LOCATION-UNDISCLOSED. U. S. Eng., North Atlantic Div., 80 Lafayette St., New York 13, N. Y.

† **Drake-Merritt**, 50 Broadway, New York, N. Y. Contract Awarded, air base, LOCATION-UNDISCLOSED. U. S. Eng., North Atlantic Div., 80 Lafayette St., New York 13, N. Y.

† **Steers-Grove**, 346 Broadway, New York 13, N. Y. Contract Awarded, airfields, LOCATION-UNDISCLOSED. Yards & Docks Annex, Navy Dpt., Arlington, Va.

PROPOSED PROJECTS

WATER SUPPLY

Calif., Costa Mesa—Fairview County Water Dist., Costa Mesa, replacing entire water sys. and addn. fire hydrants, $325,000. J. R. Lester Boyle, Spurgeon Bldg., Santa Ana, consult. engr.

Ga., Jasper—City, WW sys. addn. $150,000.

Ill., Joppa—City, city clk., water supply and distr. sys. and sewer facilities, $200,000.

Mc., Brookfield—City, City Hall, voted bonds Feb. 20, WW improvs., $250,000.

Pa., West Mifflin (Pittsburgh P.O.)—South Pittsburgh Water Co., 238 Brownsville Rd., Mt. Oliver, Pittsburgh, Pa. 2½ m.g. elevated water tank. Robert Freeman, 121 S. Broad St., Phila., engr.

Tex., Sealy—City, water sys. rehabilitation, exten. $200,000; steel water storage tank and towers, $50,000. Helland & Seligmann, 302 Frost Bank Bldg., San Antonio, consult. engrs. CD 11/13.

Wash., Kennewick—City, City Hall, replacing 8 mi. Highlands water mains, $110,462. N. W. Haner, 220 S. W. Adler St., Portland, Ore., consult. engr. CD 2-26.

Ont., Brantford—Brantford Public Utilities Comn., 32 Queen St., WW extension program with present capacity of filtration plant, $300,000. W. R. Catton waterworks mgr. James F. MacLaren Assoc., 705 Yonge St., Toronto, consult. engrs. CD 10/4/49.

SEWERS, WASTE DISPOSAL

Ill., Bridgeport—City, City Hall, sewage treatment works, sanitary sewers, WW, $400,000. Marbry & Johnson, 209½ Cross St., Robinson, consult. engrs.

Ia., Des Moines—City, sewage plant expansion, $450,000. CD 5/9/44.

Mo., Columbia—City, W. N. Taylor, mgr., sewage treatment plant, near jct. Hinkson Creek and Flat Branch, $647,000; 18 in. gravity flow sewer in Hinkson Creek Valley, $204,000; 8 in. c.i. force main to connect Bear Creek pump station with gravity flow sewer, $53,000, Black & Veatch, 4706 Broadway, Kansas City, Mo., consult. engrs. CD 11/27

▲ **Mo., University City (St. Louis 5, P. O.)**—City, City Hall, 6801 Delmar Blvd. voted $2,185,000 bonds Feb. 27, sewers, sanitary rubbish disposal plant, Streets, expansion of parks and recreational facilities. CD 2/12.

Neb., Lincoln—Lancaster County Sanitary Dist. 1, Lincoln, improvs., extens. sewage plant, 22 and Theresa Sts. $700,590. Black & Veatch, 4706 Broadway, Kansas City, Mo., consult. engrs. W. B. Cole, c/o owner, engr.

▲ **Pa., Morrisville**—Bd. Municipal Auth., Morrisville, complete borough sewerage sys. to serve 2,000 homes; incl. 158,400 ft. sewer lines and sewage disposal plant. $2,000,000. Albright & Friel, Inc., 121 S. Broad St., Phila., consult. engr. Harry H. Lee, Jr., 221 W. Maple Ave., engr. CD 1/20/47.

Tex., Big Spring—City, voted bonds, storm sewers, $250,000; sanitary sewers, $300,000. G. W. Dabney, city engr.

Tex., Houston—Fresh Water Supply Dist. 14, Court House, sewage treatment plant, $150,000; sanitary sewer collection sys. $200,000. Frank J. Metyko, Scanlan Bldg., consult. engr.

Tex., Lone Star—Lone Star Twp., Daingerfield, sanitary sewerage sys. $60,000; open drainage, storm sewers, $65,000

Wis., Kenosha—City, plans by L. Monberg, 815 57 St., 2 story, 51x60 ft. incinerator plant addn. $180,000.

Wis., Oconto—City, sewers and sewage treatment plant, $547,656. H. A. Hall, Oconto, and Foth & Porath, Inc., 409 E. Walnut St., Green Bay, consult. engr.

Ont., Newmarket—Town, Wesley Brooks, clk.-treas., Newmarket, sewage disposal plant, $300,000. Proctor Redfern & Laughlin, 11 Jordan St., Toronto, Ont., consult. engrs. Denne Bosworth, c/o owner, engr. CD 1/8/47.

Que., Montreal—Municipality, sewer at St. Remi tunnel. $100,000. H. Gibeau, City Hall, city engr.

BRIDGES

Ill., Chicago—City, City Hall, Zone 2, grade separation South East Outer Drive from 47 to 57 Sts. $400,000. Dpt. Subways & Superhighways, 20 N. Wacker Dr., Zone 6, consult. engrs.

▲ **Maine**—State Hy. Comn., Augusta,

Penobscot Co.—steel, concrete, truss type Bangor-Brewer Bridge over Penobscot River $2,300,000 Lucius Barrows, state hy. comr.

Tex., San Antonio—City, City Hall, Military Plaza, steel, concrete vehicle bridge across San Antonio River, on 5th St., $100,000; steel, concrete vehicle bridge across San Antonio, River, on 7 St., $110,000. M. L. Diver, 1104½ Main Ave., consult. engr. CD 3/1, under LB.

Washington—State Hy. Dpt., Olympia,

Cowlitz Co.—grading, paving approaches to Cowlitz River Bridge, Kelso. $120,000. W. A. Bugge, state hy. dir.

Que., Montreal—Municipality, pedestrian tunnel under Canadian Pacific R.R. tracks from St. Emile St. to St. Fernand Park. $120,000. Henri Gibeau, City Hall, city engr.

STREETS AND ROADS

† **Idaho**—Bureau P. Rds., Dpt. Commerce, Boise, Idaho.

Custer Co.—impv. 46 mi. road from U. S. Hy. 93, near Challis to Blackbird cobalt mine, $288,050. L. M. Huggins, distr. engr.

Mich., Adrian—City, William Gibbs, comr., bond election Apr. 2, 25 mi. city streets, $750,000.

Mich., Birmingham—City, Donald C. Egbert, mgr., City Hall, road work, paving Pierce St., $20,000; Oak St. $42,000; Woodward Ave., $69,000, L. R. Care, City Hall, city engr.

▲ **Mich., Detroit**—City, Carl D. Warner, comr., resurf., repairing about 80 mi. 40 streets, $2,500,000, George Thompson, City Hall, city engr. CD 3/30/43.

▲ **Mo., Kansas City**—City, Pub. Wks., City Hall, Zone 6, complete Manchester Trafficway, $2,000,000; 4-lane Northeast Industrial Dist. Trafficway, $500,000; imprv. Chestnut Trafficway from Independence Ave. to 18 St. and Prospect Ave. connection on south with U. S. Hy. 71, $240,000. CD 11/10/47.

Tex., Sealy—City, street imprvs. and paving, $145,000. Helland & Seligmann, 302 Frost Bank Bldg., San Antonio, consult. engrs. CD 11-13.

Tex., Sweetwater—City, street paving program. $226,000. Freese & Nichols, 407 Dancier Bldg., Fort Worth, consult. engrs.

Vermont—State Hy. Dpt., Montpelier.

reconstruction of Rt. 1, State Hy. (cement) on Route 7 from Pownal to Mass. state line $120,000. Wm. E. Dailey, Shaftsbury, engr.

▲**Washington**—State Hy. Dpt., Olympia,

King Co.—surf., oiling, bridges on Secondary State hy. Kennydale north, $552,000.

resurf. 1.1 mi. Snoqualmie Falls hill on Primary State Hy. 2, $20,000

widn., asph. paving and 6 bridges on Primary State Hy. 2, Issaquah-North Bent, $678,000;

c. conc. and asph. paving 4.5 mi. Issaquah west, $50,000. W. A. Bugge, state hy. dir.

Ont., Port Arthur—City, A. H. Evans, clk., City Hall, road improvs., paving and street widn., $559,650. S. E. Flock, city engr.

AIRPORTS

† **Ariz., Goodyear**—HANGAR, etc.—Bureau Yards & Docks Annex, Navy Dpt., Arlington, Va., plans by Milligan, Sawyer & Pistor, engrs. and archts., 31 W. Camelback Rd., Phoenix, hangar, administration bldg., barracks, radio receiving station, addnl. storage space and industrial-type fencing, Litchfield Naval Air Facility.

† **Wash., Moses Lake**—BARRACKS, etc.—U. S. Eng., 4735, Marginal Way, Seattle, Zone 4, alert barracks, $376,000; women officers' quarters, $69,000 at Larson Air Force Base. CD 12/28-49.

LATIN AMERICA

Mexico, Mexico City—Broches Metalicos, S. A. Uruguay, 482, Mexico City, plans metallic brooch factory. $250,000.

Mexico, Mexico City—Negociacion Textil La Concordia, S. A. San Juan de Letran, 21-707, Mexico City, plans textile factory. $600,000.

Mexico, Mexico City—Productos Lioflizados, S. A. Durango, 200, Mexico City, plans human plasma, Cohn Method, factory. $350,000.

Mexico, Mexico City—Siderurgica Modelo, S. A. Isabel la Catolica, 52-801, Mexico City, plans steel factory. $500,000.

Mexico, Monterrey—Fabricas Orion, S. A., Apartado postal No. 500, Monterrey, N. L., plans sanitary furniture factory. $300,000.

PUBLIC BUILDINGS

▲ **Calif., El Centro**—HOUSING—Housing Authority of Imperial Co., El Centro, plans by Hans Wallner, 7414 Otis St., South Gate, and J. F. Golden, 1461 Main St., El Centro, 150 dwelling units in various locations. $1,500,000.

Calif., Orange—SCHOOL—Orange City School Dist., 370 N. Glassel St., plans by Marsh, Smith & Powell, 208 W. 8 St., Los Angeles, 350,000 sq. ft. high school, Shaffer and Walnut Sts. $800,000. CD 5/26.

▲ **Colo., Denver**—OFFICE—General Services Admin., General Services Bldg., F and 19 Sts. N. W., Wash., D. C. office, W. 6 Ave. at Kipling St. $15,000,000. CD 7/19/45.

† **Colo., Pueblo**—ORDNANCE DEPOT—U. S. Eng., 1709 Jackson St., Omaha, Neb., 1 story, 100x250 ft. Ordnance Depot (expansion) vehicle shop bldgs. $500,000.

▲ **Idaho, Blackfoot**—SCHOOL—School Bd., Blackfoot, high school. $1,000,000. CD 4/24.

Ill., Chicago—SCHOOL—Bd. Educ., 228 N. LaSalle St., Chicago, Zone 1, plans by John C. Christensen, 228 N. LaSalle St., Chicago, Zone 1, Phillip School, 3831 S. Prairie Ave. $450,000.

Mich., Hart—HOSPITAL—Oceana Co. Hospital Bd. Comrs., plans by Edwin J. Sarvis, 201 Bailey Bldg., Battle Creek, 2 story, brick, concrete hospital. $400,000.

Mich., Ionia—HOSPITAL—Ionia Co. Memorial Hospital, brick, steel, concrete hospital, $730,000.

Mich., Lansing—SCHOOL—City, Dwight H. Rich, supt., bond election Apr. 2, brick, steel, concrete Junior High School, Thomas site, north side, $900,000. CD 12/14/45.

▲ **Mo., University City (St. Louis 5, P. O.)**—SCHOOLS—University City School Dist. Bd. Educ., Dr. Julius E. Warren, supt. Schools, 6701 Delmar Blvd., voted $1,750,000 bonds Feb. 27, 2 schools, one in Del Crest Subdivision and other in 82 St. south of Fogert Park. $500,000 each; addns., imprvs. to Jackson Park and Blackberry Schools, $350,000. Wm. B. Ittner, Inc., 408 Bd. Educ., Bldg., 911 Locust St., St. Louis, Zone 1, archts. CD 12/21.

▲ **Mont., Helena**—LABORATORY—State Bd. Examiners, plans by V. H. Walsh, Helena, state laboratory bldg. CD 2/7/49.

▲ **N. J., New Brunswick**—MEDICAL and DENTAL—Dpt. Education, State of New Jersey, State House, Trenton, state medical and dental colleges at Rutgers University, $25,000,000. CD 10/1/45.

O., Cincinnati—YOUTH CENTER—Juvenile Detention Home, Court House and Courthouse Annex Comn., Cincinnati, plans by Potter-Tyler & Martin, 128 E. 6 St., Zone 1, and Felsberg-Gillespie, Ingalls Bldg., Zone 1, 2 story, basmt., rein.-con., brick cross shaped youth center, incl. class rooms, 2 dormitories, cafeteria, gymnasium, baseball diamond. $600,000. Willard C. Pistler, 4 W. 7 St., consult. engr.

Ore., Forest Grove—SCHOOL—School Bd., Forest Grove, bond election Mar. 31, union high school, $687,000. Donald W. Edmundson, Henry Bldg., Portland, Ore., archt.

R. I., Cranston—SCHOOL—City, Supt. Schools, Park Ave., plans by Oliver D. Gauvin, 72 Weybossett St., Providence, 1 story cinder block, brick facing school, Woodridge Plot. $400,000. CD 2/26.

R. I., Middletown—SCHOOL—Town, Town Hall, 1 story, 9 room school. $403,000. CD 2/14/49.

S. C., Langley—SCHOOL—Aiken Co. Bd. Educ., Aiken, Langley-Bath-Clearwater High School. $456,000. CD 10/5/45.

Tex., Mineral Wells—HIGH SCHOOL—City, W. C. Cunningham, supt. Schools, Mineral Wells, plans by Wilson & Patterson, 202 Majestic Bldg., Fort Worth, 1 story, brick, tile high school, concrete fdn. $600,000.

▲ **Utah, Price**—SCHOOL—Carbon County School Bd., c/o Movell Jewkes, clk., Price, voted bonds Feb. 21, schools at Price and Sunnydale and schools addns. at Price, Helper, Dragerton and Wellington. $1,080,000.

DRILLING CONTRACTORS

DIAMOND AND SHOT CORE BORINGS—DRY SAMPLE BORINGS

Foundation Testing for Bridges, Dams and All Heavy Structures

Also

Manufacturers of Diamond and Shot Core Drills, Accessories and Equipment

SPRAGUE & HENWOOD, Inc.

Scranton, Pa. Dept. E, U. S. A.

CONSTRUCTION FIRMS!

We ship all over the World

CIGARETTES

IN BOND (Tax Free)

Popular Brands CASE LOTS F.O.B. Jersey City, N. J.

90c CARTON

We can also supply Drugs, Drug Sundries, Cigars, Candy & Photographic Supplies (packed for all climates). Packing & forwarding from our own warehouse. Call or write.

SILVER ROD SALES
EXPORT DIVISION
Jersey City 6, New Jersey
REctor 2-8347

▲ **Wash., Renton**—SCHOOLS—School Dist. 403, Renton, North Highland School, $800,000; Spring Glen School, $300,000. CD 1/5/45.

▲† **Alaska, Fort Richardson**—REFRIGERATED STORAGE—U. S. Eng. (APO 942, c/o PM, Seattle, Wash.) Anchorage, plans by Jones & Bindon, Hoge Bldg., Seattle 4, Wash., concrete refrigerated storage bldg. $2,840,000. CD 11/27.

Ont., Port Hope—SCHOOL—Durham County High School Bd., Port Hope, high school. $750,000.

▲ **Ont., Toronto**—HEADQUARTERS—Defense Constr. Ltd. 395 Fleet St. W., Toronto, Ordnance Depot and command headquarters for R.C.E.M.E. at Lakeview, incl. rail spurs roadways and buildings. Approx. $6,000,000.

Ont., Toronto—APARTMENT—York Twp., H. A. Hall, clk., 2700 Eglinton Ave., 1 story units, brick U-shaped 100 suite apartment for aged, between Cordella and Lambton Aves. Approx. $650,000. CD 1/11.

COMMERCIAL BUILDINGS

▲ **Ark., Little Rock** — HOSPITAL — Urban League of Little Rock, 914 Gaines St., hospital for negroes. $1,200,000.

▲ **Ill., Chicago** — OFFICE — Prudential Insurance Co., 763 Broad St., Newark, N. J., plans by Naess & Murphy, 80 E. Jackson Blvd., Zone 4, 35 story office on air rights of Illinois Central R. R. at Randolph St. near Michigan Blvd. $30,000,000.

MIch., Charlevoix—HOSPITAL—Charlevoix Hospital Bd. Trustees, Charlevoix, plans by Skidmore, Owings & Merrill, 100 W. Monroe St., Chicago, Ill., 2 story, brick steel, concrete hospital. $400,000.

▲ **Mo., St. Louis**—HOSPITAL—Evangelical Deaconess Society of St. Louis, c/o Deaconess Hospital, Carl C. Rasche, hospital admin., 6150 Oakland St., Zone 10, plans by Charles M. Gray & James Auer, 3800 W. Pine St. Zone 8, 4 story, brick, rein.-con., steel Deaconess Memorial Hospital, south and East of present hospital, $1,500,000. CD 12/30/49.

N. J., Chatham—APARTMENT—Volker & Apgar, Inc., Madison 40-family garden type apartment, Main St. between Van Doren and Garden Aves. $350,000.

N. Y., Brooklyn—APARTMENT—Joseph Harris, 16 Court St., Zone 2, plans by Kavy & Kavsvitt, 44 Court St., Zone 2, 6 story apartment, 9201-29 Kings Hy. $550,000.

N. Y., Flushing—STORE—Hacher Realty Corp., c/o E. Cappello, archt., 164-01 Northern Blvd., 1 story store, Hollis Court and Horace Harding Blvds. $300,000.

N. Y., Flushing—APARTMENT—Millard Shroder, c/o Paul Resnick, archt., 654 Madison Ave., New York, Zone 21, 6 story, 75x180 ft. apartment, Horace Harding Blvd., and 164 St. $550,000.

N. Y., New York—APARTMENT—Isham Realty Corp., 1753 Tenbroeck Ave., Zone 61, plans by Glick & Gelbman, 400 E. Forkham Rd., Zone 58, 6 story apartment, 100-108 Park Terrace West and 532-34 W. 218 St. $500,000.

▲ **N. Y., New York**—APARTMENT—Syndicate, Samuel Rudin, pres., 36 W. 44 St., Zone 18, plans by Emery Roth & Sons, 18 E. 48 St., Zone 17, 19 story apartment for 360 families, Washington Square North, Fifth Ave. and W. 8 St. $3,000,000.

▲ **O., Cincinnati**—APARTMENT—Faxon Realty Co., 3601 Belle Crest, 35 brick, concrete apartments. $1,500,000.

▲ **O., Cincinnati**—COMMERCIAL CENTER—The Jonathan Woodner Co., Enquirer Bldg., Zone 1, plans by Ketchum, Gina & Sharp, 227 E. 44 St., New York, N. Y., 11 story office, 5 story apartment and one large department store, 25 or 30 small shops, etc. on 7 acres, also 33 acres for parking, etc. $12,000,000.

Pa., McKeesport—CHURCH, etc.—St. Marys Roman Catholic Congregation, Versailles Ave., plans by Stickle, Kelly & Stickle, 2422 Prospect St., Cleveland, O., 2 story, bsmnt., stone, block, steel church and rectory. $500,000. CD 3/6/47.

▲ **Pa., Morrisville**—HOMES—Thomas B. Stockham, Inc., 12 S. Pennsylvania Ave., plans by Thomas B. Stockham, 3rd, 12 S. Pennsylvania Ave., 120 homes on 300 acre tract on Old Lincoln Hy. $1,200,000.

▲ **S. C., Aiken**—HOUSING—J. C. Long, 90 Broad St., Charleston, 400 unit housing. $2,400,000.

Tex., Houston—CHURCH—St. John the Devine Church, 2450 River Oaks Blvd., plans by MacKie & Kamrath, and Hiram A. Salisbury, 2713 Ferndale St., church. $400,000.

Tex., McAllen—CHURCH—First Baptist Church Congregation, McAllen, plans by Zeb Rike, Nelson Bldg., church bldgs. $400,000.

▲ **Tex., Midland**—BANK and OFFICE—Midland National Bank, Main and Wall Sts., masonry multiple story bank and office. $1,000,000.

▲ **Alaska, Anchorage** — APARTMENT HOUSE — Allied Building Credits, Inc., White-Henry-Stuart Bldg., Seattle 1, Wash., apartment $400,000; 150 houses. $1,500,000.

INDUSTRIAL BUILDINGS

Ala., Birmingham—PLANT—General American Transportation Corp., 135 S. LaSalle St., Chicago 90, Ill., plant, on 20-acre tract of land, North Birmingham. $200,000. CD 12/14.

Calif., Monterey—PLANT—Monterey Peninsula Herald, 498 Washington St., plans by Wurster, Bernardi & Emmons, 402 Jackson St., San Francisco, newspaper plant.

Conn., Danbury—FACTORY—Barden Coop., E. Franklin St., plans by Sherwood Mills & Smith, 65 Broad St., Stamford, factory. Fred Sutton, 220 Broadway, New York, N. Y., mech. engr. Seelye Stevenson & Value, 101 Park Ave., New York, N. Y., structural engr.

Fla., Orlando—SALES and SERVICE—Holler Chevrolet Co., c/o James Gamble Rogers II, archt., Winter Park, auto sales and service bldg. $125,000.

▲ **Ga., Hapeville**—PLANT—Ford Motor Co., 3000 Schaefer St., Dearborn, Mich., plant addn. $1,000,000.

Ind., Evansville—FACTORY—Servel Co., 119 Morton Ave., two 1 story, 180x400 ft., and 2 story, 50x300 ft., factory buildings, and 75x140 ft. overpass, all brick, concrete, structural steel, $600,000. Dana S. Pope, c/o owner, engr.

Ind., Syracuse—PLANT—Weatherhead Corp., 300 E. 131 St., Cleveland, O., plant, $750,000.

Ia., Lakota—GRAIN ELEVATOR—Arthur C. Schissel, Lakota, grain elevator, $100,000.

Mass., Chester—FACTORY—Coutland Grinding Wheels Corp., Old Huntington St., plans by Arthur L. Peppin, 171 Rimmon Ave., Chicopee, 1 story, 105x120 ft., cinder block, brick veneer, steel factory addn. $100,000.

Mich., Battle Creek—PLANT—Eaton Mfg. Co., Battle Creek, brick, steel, concrete forge and heat treating plant. $675,000.

▲ **Mich., Edmore**—PLANT—Carboloy Co., Inc., K. R. Beadslee, pres., 11177 E. 8 Mile Rd., Detroit, carbide metal plant, incl. facilities for processing tungsten carbide, $2,000,000. Smith-Hinchman & Grylls, 800 Marquette Bldg., Detroit, consult. engrs.

▲ **Minn., Minneapolis**—WAREHOUSE—Gamble Robinson Co., 301 5 St. N., superstructure 1 story, 201x450 ft. warehouse, 655 5 Ave. N. $1,000,000.

Mo., Kassas City—PLANT—Mode O'Day Corp., 109 W. 18 St., Zone 8, 20,000 sq. ft. plant, 26 and Washington Sts.

Mo., Kansas City—PLANT—Pisciotta Fruit, Vegetable & Provision Co., 409 Walnut St., plans by G. B. Franklin, Temple Bldg., processing and refrigeration plant, $200,000, Alfred Masterson, Lee Bldg., struc. engr.

Mo., Kansas City—PLANT—The Vet Products Co., 1522-24 Holmes St., Zone 8, plant expansion.

Mo., Kansas City—PLANT—Whitle-Vess Bottling Co., 1410 Agnes Ave., Zone 1, 36,000 sq. ft. bottling works, 13 St. and Kansas Ave.

Neb., Omaha—GARAGE—Arthur H. Paul & Leonard Goldstein, 202 N. 19 St., brick garage and improved parking space, 18 and Cas Sts. $125,000.

Neb., Sidney—ELEVATOR—Denver Elevator Co., Equitable Bldg., Denver, Colo., grain elevator. $150,000.

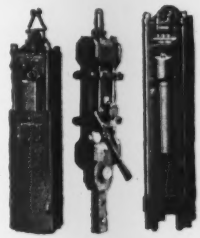
▲ **N. J., Linden**—PLANT—Rheem Mfg. Co., 570 Lexington Ave., New York, N. Y., 130,000 sq. ft. steel drum plant. $1,500,000.

McKIERNAN-TERRY

Wide-Range Line of

PILE HAMMERS

***and* EXTRACTORS**



Now made in complete, standardized line of ten double-acting hammers, five single-acting hammers and two double-acting extractors. Write for free descriptive Bulletins.

Also builders of coal and ore bridges, bulk material unloaders, bridge operating mechanisms, hoist sand marine equipment. and specially designed machinery.

McKiernan-Terry Corporation

Manufacturing Engineers

13 PARK ROW, NEW YORK 7, N. Y.

PITTSBURGH

·DES MOINES

ELEVATED STEEL BINS

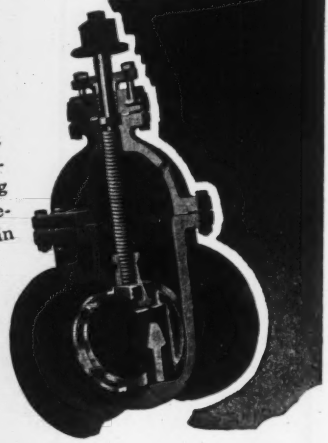
For the economical and efficient storage of any free-flowing dry material — built in types and sizes suited to your particular need. *Let us consult with you.*

PITTSBURGH · DES MOINES STEEL COMPANY

Pittsburgh, Pa. 3414 Neville Island
Des Moines, Ia. 915 Tuttle Street
Santa Clara, Cal. 621 Alviso Road

HOW TO BUY A VALVE

When you buy a valve, you buy pipe-line control—which encompasses valve design, construction, operation, first cost and maintenance. Purchase-price alone is not the determining factor. Price is relative. A high quality valve having longer life and giving better pipe-line control always is lowest in final cost.



M & H VALVE AND FITTINGS COMPANY
ANNISTON, ALABAMA

DEPENDABLE SERVICE— YEAR AFTER YEAR!

Field reports establish the fact that M & H Valves are correctly designed, dependable in operation, with a record of long life and freedom from repair. Engineers recommend M & H Valves on basis of low cost per year of service. Sizes 2 to 30 inch, inclusive, with all standard end connections, including Mechanical Joint.

COMPLETE INFORMATION ON REQUEST

M&H PRODUCTS Everywhere

"Gunite" . . . . the sand-cement product of the "CEMENT GUN," for Concrete and Masonry Repairs, Pre-Stressed Tanks, Steel Encasement and for lining Reservoirs, Sewers and Tunnels.

CEMENT GUN COMPANY
"GUNITE" CONTRACTORS
GENERAL OFFICES—ALLENTOWN, PENNA., U.S.A.
MANUFACTURERS OF THE "CEMENT GUN"

N. Y., Astoria—WAREHOUSE, etc.—Harris Structural Steel Co., 419 4 Ave., New York, warehouse and storage, 20 Ave. between 45 and 46 Sts. $200,000. G. Harris, c/o owner, engr.

N. Y., Astoria—FACTORY—Jacoby-Bender, c/o David Levy, archt., 70 E. 45 St., New York, 2 story, 150x200 ft. factory and office, 35 Ave. between 35 and 36 Sts. $261,000.

N. Y., Brooklyn—STORAGE and OFFICE—Scottmetro Realty Corp., 23-23 Borden Ave., Long Island City, 2 story storage and office bldg. for paper products, 1294-1330 Metropolitan Ave. $300,000. Jacob Berman, 24-16 Bridge Plaza South, Long Island City, engr.

N. Y., Brooklyn—FACTORY—236 Front Street Corp., 25 Willoughby St., Zone 1, plans by Jerome Zirinsky, 25 Willoughby St., Zone 1, 2 story quilting factory 24-46 Ash St. $300,000.

N. C., Greenville—PLANT—Carolina Sales Corp., Greenville, rebuild plant. $100,000.

S. C., North Charleston—STORAGE PLANT—Pure Oil Co., 35 E. Wacker Dr., Chicago, Ill. 9 m. g. storage plant. $500,000.

S. D., Woonsocket—PLANT—Central Electric & Gas Co., H. A. Hanson, secy., 114 S. 12 St., Lincoln, Neb., plant and equip. $280,000.

Tenn., Chattanooga—PLANT—American Lava Corp., 219 Kruesi Bldg., Zone 5, plans by W. H. & P. B. Shepherd, 803 James Bldg., plant. $700,000.

Tex., Austin—FACTORY—Ward Body Works, Inc., D. H. Ward, pres., Hy. 65, Conway, Ark., plans by McAninch & Mahnker, Exchange Bldg., Little Rock, Ark., 1 story (14 ft) 120x400 ft., steel, frame and deck, brick factory, concrete floor and fdn. CD 2/2, under Ark., Conway.

Tex., Corpus Christi—METER HOUSE—Central Power & Light Co., 120 N. Chaparral St., plans by Dexter Hamon, 912 Ocean Dr., concrete, masonry meter house addn., air-conditioning, etc. $100,000.

Tex., Fort Worth—FREIGHT STATION, etc.—St. Louis-San Francisco Co., E. L. Anderson, ch. engr., 309 N. Jefferson Ave., Springfield, Mo., 1 and 2 story, brick, rein.-con. stone freight station and office, 276 ft. long, 42 and 56 ft. wide, with docks 151 ft. long, Hamphill St. on Vickery Blvd. provision for adding third story to office sect. later.

▲ Tex., Pampa—PLANT—Phillips Chemical Co., Bartlesville, Okla., to reclaim sulphur from sour gas. $1,250,000.

▲ Wash., Irvin—PLANT—Spokane Portland Cement Co., Old National Bank Bldg., Spokane, enlarge cement plant, $3,500,000.

▲ Wis., Milwaukee—PLANT EXPANSION, etc.—Inland Steel Products Co., 208 E. Wisconsin St., plant expansion and modification. $2,500,000.

▲ Que., Black Lake—GARAGE, etc.—Johnson's Asbestos Co. Ltd., Black Lake, heavy truck garage, drill shop, carpenters shop, flow mill, fibre storage bldg., etc., $1,200,000. W. J. Johnson, Thetford Mines, Que., development engr. Kinborn Eng. Co. Ltd., 137 W. Wellington St., Toronto, engr. CD 2/6.

UNCLASSIFIED

▲ Arizona and Nevada—GAS PIPE LINE—Nevada Natural Gas Pipe Line Co., Garden City, Mo., 114 mi. natural gas pipe line from Topock, Ariz. to Las Vegas, Nev. $2,331,350.

▲ Colorado—NATURAL GAS PIPE LINE—Public Service Co. of Colorado, 15 and Champa Sts., Denver, natural gas pipe line serving Rifle, Grand Valley, Palisade and Debeque. $2,308,000.

▲ Kentucky—RURAL DISTRIBUTION LINES—Grayson Rural Electric Co-operative, Grayson, 477 mi. rural distr. lines, sys. imprvs., Carter Co. $1,000,000.

▲ Massachusetts—GAS PIPE LINE—Algonquin Gas Transmission Co., State St., Boston, constr. 253 mi. main line, 279 mi. laterals, 8 and 10 in. welded steel natural gas pipe lines through Massachusetts towns and cities from New York State Line. $30,477,800.

Mass., Boston—SWIMMING POOL—City, City Hall Annex, swimming pool, North End Park. $300,000. George C. Hyland, comr. P. Wks.

▲ Michigan—GAS DISTRIBUTION LINE—National Utilities Co. of Michigan, Sturgis, gas distr. line to tap Panhandle natural gas line near Marshall and distribute gas in Sturgis, Coldwater, Hillsdale, Burr Oak, Bronson, Tekonsha, Quincy, Jones and Union City. $1,500,000.

Neb., Omaha—DRIVE-IN THEATRE—Herman Gould, 224 Logan Bldg., St. Joseph, Mo., will not construct drive-in theatre, 56 and Ames Ave. Project abandoned. CD 1/11.

† N. M., Las Cruces—INSTRUMENTATION—U. S. Eng., Box 1538, Albuquerque, plans by Kenneth Clark, Santa Fe, instrumentation structure. $350,000.

North Carolina—RAILROAD—Raleigh-Rolesville R. R., Arnold Davis, 2907 Fairview Rd., Raleigh, 18.5 mi. railroad from Raleigh to Rolesville.

▲† Alaska—REROUTING RAILROAD—The Alaska Railroad, Dpt. Interior, Anchorage, rerouting railroad between Anchorage and Seward. $1,000,000.

▲ Que., Montreal—PARK IMPRVS., etc.—Municipality, Park Lafontaine imprvs. $242,075; parks, playgrounds, imprvs., $500,000; comfort stations in parks and playgrounds, $300,000; greenhouse at Botanical Gardens $160,000. Henri Gibeau, City Hall, city engr. CD 1/11/45.

CONSTRUCTION REPORTS-Second Section

NEW ENGLAND

BIDS ASKED—HEAVY CONSTRUCTION
STATE HIGHWAY LETTINGS
BRIDGES

March 26 — Connecticut
April 10 — New England
STREETS AND ROADS
March 26 — Connecticut
March 27 — Massachusetts

LOW BIDDERS—BUILDINGS

▲Wadham & Mayo Co., 15 Lewis St., Hartford, Conn. Low Bidder, $1,351,000. 1 and 2 story, brick, concrete SCHOOL, WEST HARTFORD, CONN. City, School Dist., West Hartford, Conn. Bids Mar. 9, awarded Mar. 9. CD 2/27.

Joseph Rugo, Inc., 581 Boylston St., Boston, Mass. Low Bidder. $979,432. Contr. 1, new OUT PATIENT X-RAY and LABORATORY bldg., Pondville State Hospital, NORFOLK, MASS. State, Dpt. P Health, State House, Boston, Mass. Bids Mar. 2. CD 2/23.

MIDDLE ATLANTIC

BIDS ASKED—HEAVY CONSTRUCTION

New Jersey—B.A. 3/26—State Dpt. Conservation & Economic Development, 1060 Broad St., Newark, dredging navigation area and boat basin in Glimmerglass, Manasquan, Monmouth Co. Plans deposit $25.

† New Jersey—B.A. 3/27—U. S. Eng., 80 Lafayette St., New York, 13, N. Y., dredging and rock removal and Newark Bay vicinity of Bergen Point. Extended date. CD 2/27.

Pa., Millersville—ELECTRICAL DISTRIBUTION—B.A. 3/28—General State Auth., 18 and Herr Sts., Harrisburg, Pa. electrical distr. sys. and other utilities, separate bids, mechanical, electrical, at Millersville State Teachers College, $160,000. Plans deposit $7.50. Gatter & Diehl, 321 N. Front St., Harrisburg, engrs. CD 2/16/50.

BIDS ASKED—BUILDINGS

▲ N. Y., Port Washington—SCHOOLS—B.A. 3/26—Bd. Educ., Union Free School Dist. 4, Port Washington, Junior High School, Port Washington Ave. $468,000; Senior High School, Port Washington Blvd. $2,533,000. CD 3/2/50.

LOW BIDDERS—BUILDINGS

H. B. Alexander & Son, Inc., 315 Vaughn St., Harrisburg, Pa. Low Bidder, $529,387, general constr. secondary SCHOOL for Armaugh-Brown Joint School Bd. ARMAUGH TWP., P. O. Reedsville), PA. Public School Bldg. Auth. 1400 N. Cameron St., Harrisburg, Pa. Bids March 8. CD 2/5.

▲ General State Auth., 18 and Herr Sts., Harrisburg, rejected bids Feb. 14, Burrows EDUCATION Bldg., STATE COLLEGE, PA. L. B. $1,227,000. CD 2/19, under LB.

CONTRACTS—HEAVY CONSTRUCTION

▲ James McHugh Constr. Co., 6449 S. Park Ave., Chicago 37, Ill. Contract Awarded, $2,242,000. Div. 7, general constr. water treatment plant, south of Buffalo Ave. and 53 St.***Robert Filtering Mfg., Darby, Pa., $908,000, Div. 8, pipe and equip.***; Herbert F. Darling, Williamsville, N. Y., $390,000, Div. 9, outside piping***Steele Electric Equipment, Inc., Niagara Falls, N. Y., $130,000, Div. 10, electric works***R. J. Moran & Sons, Inc., 361 DeWitt St., Buffalo, N. Y., $98,000, Div. 11, heating and ventilating***George E. Schank, Inc., 444 Vermont St., Buffalo, N. Y., $71,000, Div. 12, plumbing. NIAGARA FALLS, N. Y. City, City Hall, Niagara Falls, N. Y. Grand total $3,839,000. Bids Feb., 21, awarded Feb. 26. CD 1/3.

CONTRACTS—BUILDINGS

▲ A. A. LaFountain, Inc., 161 Beech St., Hackensack, N. J. and August Arace Sons, Inc., 642 3 Ave., Elizabeth, N. J. Contract Awarded. Est. $7,700,000. Contr. 69, administration bldg., 11 service bldgs., 2 gasoline stations, 13 fuel dispensing sys., pump houses, 2 chlorinator bldgs., 20 utility bldgs., 6 maintenance bldgs. and 3 short-wave stations, on 188 mi. superhighway, NEW BRUNSWICK, N. J. New Jersey Turnpike Auth., 65 Prospect St., Trenton, N. J. Bids Feb. 1, awarded Mar. 15. CD 1/5.

Baton Constr. Co., 1717 Sansom St., Phila., Pa. Contract Awarded. $530,000. general constr. main LIBRARY, STATE COLLEGE, PA. General State Auth., 18 and Herr Sts., Harrisburg, Pa. Bids Jan. 31, awarded March 6. CD 2/5, under LB.

Henry A. Knott, Inc., 2107 N. Charles St., Baltimore 18, Md. Contract Awarded. $568,500, nine 1 story, bsmnt., 28x106 ft., 27x79 ft., 29x133 ft., 60-unit APARTMENTS, Oberly Court, ANNAPOLIS, MD. Annapolis Housing Auth., 89 College Ave., Annapolis, Md. CD 2/13, under LB.

† Rogers & McGrath, Inc., 1221 Kenilworth Ave. N. E., Wash., D. C. Contract Awarded. $815,000. completion continuous WIND TUNNEL BLDG. 403, Naval Ordnance Laboratory, NOY 16863, Spec. 20757, WHITE OAK, MD. Pub. Wks. Office, Potomac River Naval Command, Naval Gun Factory, Wash., D. C. CD 3/6, under LB.

SOUTH

BIDS ASKED—HEAVY CONSTRUCTION
STATE HIGHWAY LETTINGS
STREETS AND ROADS
April 4
Louisiana

† Tennessee and North Carolina—B.A. 3/30—Bureau Pub. Roads, Dpt. Commerce, Gatlinburg, Tenn.

Sevier Co., Tenn., Swain Co., N. C.—Paving etc. 12.487 mi., Newfound Gap Rd. from Cole Creek to Newfound Gap and on Clingmans Dome Rd., Proj. 1A11-2A4, Great Smoky Mountains Natl. Park. Plans deposit $10. ENR 3/15.

▲† La., Shreveport—BARRACKS—B.A. about 4/1—U. S. Eng., 300 Broadway, Little Rock, Ark., barracks and admin. bldg. at Barksdale Air Force Base, $1,000,000.

Miss., Hollandale—NATURAL GAS SYS.—B.A. About 4/1—City, natural gas sys. $730,000. Baxter F. Wade. Deposit Guaranty Bank Bldg., Jackson, engr.

▲† Florida—B.A. About 4/3—U. S. Eng., P. O. Box 4970, Jacksonville, constr. Levees L-33 and L-37, North Dade and Broward Counties and Levee L-30, Dade Co., Central and Southern Florida Flood Control Proj., Serial No. CIVENG 08-123-51-44. Bids 2/15 rejected L-33 and L-37, CIVENG 08-123-51-32, L. B. $1,270,862. CD 2/21, under LB; cancelled bids Mar. 27, Levee L-30, CD 3/1. Reopening combines three Levees.

▲† Florida—B.A. 4/3—U. S. Eng., P.O. Box 4970, Jacksonville, constr. Levees L-33 and L-37, North Dade and Broward Counties, and Levee L-30, Dade Co., Central and Southern Florida Flood Control Proj., Serial No. CIVENG 08-123-51-44. $1,000,485. Extended date. CD 3/5.

BIDS ASKED—BUILDINGS

▲ Ala., Selma—HOUSING UNITS—B.A. About 4/1—Dpt. Air Force, Dist. Eng., Mobile, Zone 7, Ala., construct, manage and finance, 225 housing units at Craig Air Force Base. Raymond Sizemore, 16 S. Hull St., Montgomery, archts. CD 12/6.

Fla., Lakeland—SCHOOL—B.A. About 4/1—Polk Co. Bd. P. Instruction, c/o W. B. Thomas V. Talley, archt., Lakeland, high school, $500,000. CD 10/22/48.

▲ Fla., Orlando—SCHOOL—B.A. About 4/1—Orange Co. Bd. P. Instruction, Orlando, West Orlando High School, $1,000,000. Geo. H. Spohn, Winter Park, and F. Earl De Loe, Orlando, archts. CD 5/9/49.

Tenn., Memphis—HOSPITAL—B.A. 4/3—Collins Chapel Hospital Com., 418 Ashland St., 3 story concrete, steel 68-bed negro hospital. $700,000. Estes W. Mann & Wm. C. Mann, Shrine Bldg., archts. Wm. Fowler, city engr. CD 4/18/49.

LOW BIDDERS—HEAVY CONSTRUCTION

State Hy. Dpt., Richmond, Va., rejected bids Feb. 20, 507 ft. bridge and 0.83 mi. approach road U. S. 60 between Covington and Clifton Forge, Allegheny Co. VIRGINIA. L. B. $548,502. CD 2/26, under LB.

† Vest & Bartell, 4478 Appleton St., Cincinnati, O. Low Bidder. $808,750, est. $693,912. 3 pump stations, 5, 10 and 17 Sts., in connection with completion flood wall, KENTUCKY. U. S. Eng., 830 W. Broadway, Louisville 3, Ky. Bids Mar. 13. CD 3/2.

LOW BIDDERS—BUILDINGS

John W. Daniel Co., Danville, Va. Low Bidder, $619,624. 2 story 96x269 ft. brick, concrete block, steel, concrete. L-shaped consolidated colored HIGH SCHOOL, WARRENTON, VA. Fauquier Co. School Bd., Warrenton, Va. Bids Feb. 23. CD 1/25.

Paul Smith Constr. Co., 1612 S. Monroe St., Tallahassee, Fla., Low Bidder, $595,000, 2 story concrete masonry RECEIVING WARD at State Hospital, CHATTAHOOCHEE, FLA. State Imprvt. Comn., Caldwell Bldg., Tallahassee, Fla. Bids Mar. 5. CD 2/12.

▲ Dye & Mullins, Inc., Box 485, Columba, Miss. Low Bidder. $1,368,461. LABORATORY SCHOOL-COLLEGE EDUCATION BLDG. at Louisiana State Uuiversity, BATON ROUGE, La. Louisiana State University, Baton Rouge, La. Bids Mar. 7. C 2/8.

▲ Paducah Housing Comn., Paducah, Ky. rejected bids Dec. 19, 240 concrete, masonry housing units, Proj. Ky 6-3, PADUCAH, KY. L. B. $2,406,937. Will re-advertise. CD 1/3 under LB.

CONTRACTS—HEAVY CONSTRUCTION

▲† Robert Lee, Inc., Manning, S. C. Contract Awarded, $1,317,262. Dredging etc. Levee L-8 and Canal in Palm Beach Co. part of Central and Southern Florida Flood Control Proj., West Palm Beach, FLORIDA. U. S. Eng., 575 Riverside Ave., Jacksonville, Fla. Bids Feb. 20. CD 2/27, under LB.

▲ † Hooper Constr. Co., Coral Gables, Fla. Contract Awarded. $1,270,862, constr. approx. 15 mi. levees L-37 and L-33 in Central and South Florida Flood Control Proj., Dade and Broward Counties, CIVENG 08-123-51-32, FLORIDA. U. S. Eng., P. O. Box 4970, Jacksonville Fla. Bids Feb. 15, awarded Mar. 6. Contractor protested rejection of bid. CD 2/21 under LB. and CD 3/7 under BA.

United Gas Pipe Line Co., 1525 Fairfield St., Shreveport, La. Owner Builds. $575,000. gas compressor station, near Monroe, LOUISIANA. CD 8/17.

V. B. Higgins Constr. Co., Greensboro, N. C. Contract Awarded. $881,940, filtration plant***Ruby Constr. Co., Madisonville, Ky, $182,472, water lines, CLARKSVILLE, TENN. City, Clarksville, Tenn. CD 1/25.

CONTRACTS—BUILDINGS

▲ Irons & Reynolds, Inc., 1724 H St., N. W. Wash., D. C. Contract Awarded. $2,296,087. I. C. Norcum SCHOOL, PORTSMOUTH, VA. City, Portsmouth, Va. Bids Jan. 19. CD 1/30, under LB.

P. S. West Constr. Co., Statesville, N. C. Contract Awarded. $694,000. Junior HIGH SCHOOL, HICKORY, N. C. City, Hickory, N. C. Bids Feb. 15. CD 2/28.

Etheridge & Vanneman, 4411 Peachtree Rd., Atlanta, Ga., Owner Builds, Approx. $750,000, 125 Bolton Estates HOUSING units, ATLANTA, GA.

▲ Clausen-Webster Constr. Co., Augusta, Ga. Contract Awarded. $1,895,500. HOUSING UNITS, AUGUSTA, GA. Augusta Housing Auth., c/o Willis, Irwin & Helen S. Irwin and Lyman H. Robertson, archts., 722 Green St., Augusta, Ga. Bids Mar. 1. CD 3/8, under LB.

Paul Smith Construction Co., 1612 S. Monroe St., Tallahassee, Fla. Contract Awarded. $595,000, MALE RECEIVING WARD at State Hospital, CHATTAHOOCHEE, FLA. Florida State Improvement Comn., Caldwell Bldg., Tallahassee, Fla. Bids Mar. 5. CD 3/9, under LB.

▲ Duval Eng. & Contg. Co., E. Adams St., Jacksonville, Fla., and Walsh Constr. Co., 122 E. 42 St., New York, N. Y. Contract Awarded. $11,000,000, cement mfg. PLANT, between BUNNELL and FLAGLER BEACH, FLA. Lehigh Portland Cement Co., 718 Hamilton St., Allentown, Pa. CD 3/12.

Hillyer & Lovan Co., 666 Dyall St., Jacksonville, Fla. Contract Awarded. $575,000, 3 story, steel, masonry DEPARTMENT STORE, Carver Main and Adams Sts., JACKSONVILLE, FLA. W. T. Grant Co., 1441 Broadway, New York, N. Y. Awarded Mar. 6. CD 10/26.

Bradford Builders, Inc., 1101 Lincoln Rd. Bldg., Miami Beach, Bla. Contract Awarded, $555,795. George Washington Carver SCHOOL addn., MIAMI, FLA. Dade Co. Bd. P. Instruction, 275 N. W. 2 St., Miami, Fla. CD 3/1, under LB.

Fairlawn Estates Inc., 3861 S. Dale Mabry, Tampa, Fla. Owner Builds. $617,500. HOUSING DEVELOPMENT addn., TAMPA, FLA.

▲ Koppers Co., Koppers Bldg., Pittsburgh, Pa. Contract Awarded. Total cost $4,500,000. constr. battery of 30 chemical RECOVERY COKE OVENS, WOODWARD, ALA. Woodward Iron Co., Woodward, Ala. CD 8/9, under CA.

W. J. Graham, Greenville, Miss. Owner Builds. $600,000. 120 HOMES, GREENVILLE, MISS.

▲ Farnsworth & Chambers, P. O. Box 74, Houston, Tex. Contract Awarded. $1,500,000. Yeast mfg. PLANT, BELLE CHASSE, LA. Red Star Yeast & Products Co., c/o contractor, E. A. Rose, Inc., 816 Howard Ave., New Orleans, La., engr.

B. & Q. Constr. Co., Inc., 511 N. Villere St., New Orleans, La. Contract Awarded. $500,000. 81 HOMES, HARAHAN, LA. Quin Developing Co., c/o contractor.

▲ Gulf States Constr. Co., Inc., 1601 Perdido St., New Orleans, La. and Anthony Bertucci, 8600 Apricot St., Chalmette, La. Contract Awarded. $48,000,000. aluminum PLANT, Chalmette, near NEW ORLEANS, LA. Kaiser Aluminum & Chemical Corp., Airline Hy., Baton Rouge, La. Frank A Bateman, 536 International Trade Mart Bldg., Chalmette, La., engr. Awarded Mar. 7. CD 2/21, under CA.

MIDDLE WEST

BIDS ASKED—HEAVY CONSTRUCTION
STATE HIGHWAY LETTINGS
STREETS AND ROADS
March 30
Illinois

Ind., Hobart—B.A. 3/30—Bd. P. Wks., City Hall, sewage treatment plant and sewerage sys. $584,000. Plans deposit $50. Consoer, Townsend & Assoc., 351 E. Ohio St., Chicago, Ill., consult engrs. CD 10/10/45.

†Michigan—B.A. 3/30—U. S. Eng., 2015 Cadillac Tower, Detroit, Zone 26, channel imprv. Upper Sect. (Sta. 466 plus 23 to Sta. 578 plus 36), Red Run Clinton River, exten. 35 ft. upstream from centerline of Thirteen Mile Rd. to outfall structure, intersection of Twelve Mile Rd. and Campbell Rd. in Royal Oak, Oakland Co., CIVENG 20-064-51-67.

BIDS ASKED—BUILDINGS

Ill., Park Forest—SCHOOL—B.A. 3/27—School Dist. 163, Park Forest, 140x460 ft., brick, steel, concrete, school. $500,000. Loebl, Schlossman & Bennett, 333 N. Michigan Ave., Chicago, Zone 1, archts.

Ind., Hammond—GYMNASIUM—B.A. 3/27—School City of Hammond, 5935 Hohman St., 85x200 ft., steel, brick gymnasium bldg. $300,000. Hutton & Hutton, 5231 Hohman St., archts. CD 3/10/50.

† O., Warren—WAREHOUSES—B.A. 3/27—General Services Admin., Pub. Bldgs. Service, General Services Bldg., 19 and F Sts., N.W. Wash. 25, D. C., Wardwell Yards Facility Warehouses, Proj. No. 33-196-2. Plans deposit $5.

Mich., Menominee—HOSPITAL—B.A. 3/28—St. Joseph's Hospital, Menominee, brick, steel, concrete hospital

addn., alteration... Extended date. Harry W. Gielsteen, 218 First St., archt. CD 2/23.

Wis., Whitefish Bay—SCHOOL—B.A. 3/28—Joint School Dist. 1, 1200 E. Fairmount Ave., Milwaukee, Zone 11, 1 and 2 story, 27x72 ft., steel, brick Henry Clay School addn. $325,000. Plans deposit $25. Grassold & Johnson, 734 N. Jefferson St., Milwaukee, Zone 2, engrs. CD 11/16.

Ill., Marion—HOSPITAL—B.A. 3/29—Marion Memorial Hospital, John E. Glass, pres. Hospital Bd., Marion, 2 story, bsmnt., 55-bed cross-shaped concrete, steel, brick hospital. $900,000. Wm. B. Ittner, Inc., 408 Bd. Educ. Bldg., 911 Locust St., St. Louis, 1, Mo., archt. CD 7/18.

Ill., Bement—SCHOOL—B.A. 3/30—Bd. Educ., Community Unit School Dist. No. 5, High School Bldg., Bement, 350,000 cu. ft., brick, rein.-con. Gymnasium addn. to high school. Plans deposit $20. Gregg & Briggs, 100 First Natl. Bank Bldg., Peoria, archts. CD 4/9/46.

▲ Ill., Chicago—MEMORIAL HOSPITAL, etc.—B.A. 4/2—University of Chicago, 905 E. 58 St., Chicago, Zone 15, 7 story, 162x162 ft. Hicks and Smith Memorial Hospital, $2,500,000; Billings Hospital addn. $1,000,000. Schmidt, Garden & Erickson, 104 S. Michigan St., Zone 3, archts. CD 1/15.

Ill., Chicago—FOOD MARKET—Bids Asked—Owner, c/o Peter E. Camburas, archt., 105 W. Madison St., Chicago, Zone 3, food market, 1031-59 Granville Ave. $300,000.

Ill., Chicago—FACTORY—Bids Asked—Symons Clamp & Mfg. Co., 4249 W. Diversey St., Zone 41, 1 story, 24,000 ft. factory and 4,000 sq. ft. loading dock, $250,000. Fox & Fox, 30 N. Salle St., Zone 2, archts.

Mich., Grosse Pointe Farms—GARAGE—Bids Asked—Grosse Pointe Farms, Pub. Wks. Dpt. (selected list bidders) 1 story, brick, concrete maintenance and storage garage, $85,000, Arnold A. Weitzman, 424 Lafayette Bldg., Detroit, archt. CD 4/14/44.

Wis., Oconomowoc—BAKERY—Bids Asked—Marshwood Co., 132 N. Main St., 1 story, part bsmnt., 82x102 ft., concrete, steel, concrete blocks, steel BAKERY. Darby, Bogner & Associates, 759 N. Milwaukee St., Milwaukee, Zone 2, archt. CD 11/16.

Wis., West Milwaukee—FACTORY—Bids Asked—Inland Steel Products Co., 4101 W. Burnham St., Zone 14, 1 story, 811x392 ft., concrete, brick, steel FACTORY, $900,000. V. K. Boynton, 611 N. Broadway, Milwaukee, Zone 2, engr. CD 2/13.

SOON LETS CONTRACT—BUILDINGS

Ind., Sout Bend—DORMITORY—Notre Dame University, Campus, South Bend, soon lets contract Fisher Dormitory, $700,000. Holabird, Root & Burgee, 180 N. Wabash St., Chicago 1, Ill., archts. CD 10/23.

LOW BIDDERS—HEAVY CONSTRUCTION

▲ Mosser Constr. Co., 122 S. Wilson Ave., Fremont, O. Low Bidder, $1,237,903, est. $780,000, water filtration plant addn., modernization, FREMONT, O., City, City Hall, Fremont, O. Bids March 8. CD 2/14.

▲ † Central Eng. Co., 2531 Rockingham Rd., Davenport, Ia., Low Bidder, $2,505,023, channel paving and storm sewer dredging Farm Creek Imprvt., East Peoria, Tazewell Co., ILLINOIS. U. S. Eng., 520 Merchandise Mart, Chicago 54, Ill. CD 2/16.

Chris. Paschen Maintenance Co., 1450 N. Clybourn St., Chicago, 10, Ill. Low Bidder, $736,175, reconstr. Roosevelt Road Viaduct, CHICAGO, ILL., City, City Hall, Chicago, 2, Ill. CD 2/16.

State Hy. Comn., State Office Bldg., Madison, Wis., rejected bids Mar. 6, b. conc. 18.191 mi. Black Creek-North County Line and South County Line-Bonduel Rds., S. T. Hys. 47 and 55, Proj. T 09-1 (18) 20 & F 09-1 (19) 20, Contr. 2, Outagamie and Shawano Counties, WISCONSIN. L. B. $506,565. CD 3/12, under LB.

LOW BIDDERS—BUILDINGS

▲ James McHugh Constr. Co., 6449 S. Park Ave., Chicago 37, Ill., Low Bidder, $1,335,000, 2 story, brick RESIDENCE HALL FOR MEN, $1,430,000, STAFF APARTMENT, in West Side Medical Center, CHICAGO, ILL., University of Illinois, 809 S. Marshfield St., Chicago 7, Ill. Bids Mar. 6. CD 2/27.

Wm. R. Goss Co., 3316 S. Ellis Ave., Chicago 19, Ill., Low Bidder, $544,900, general contract RESIDENTIAL UNITS for patients, Manteno State Hospital, MANTENO, ILL. State, State Capitol, Springfield, Ill. Bids Feb. 27. CD 2/1.

CONTRACTS—HEAVY CONSTRUCTION

▲ Kelley & Meyer Co., 1211 Gibson St., Youngstown, O., Contract Awarded, $118,696, est. $115,450, widn. b. conc. resurf. 3.128 mi. U. S. R. 224, Mahoning Co.***Ohio Asphalt Paving Corp., 823 Prospect St., Portsmouth, O., $70,937, est. $72,275, b. conc. resurf. 6.953 mi. U. S. R. 140, Scioto Co.***Howard Phillips, Inc., Box 862, Hilltop Station, Columbus, O., $203,612, est. $237,000, T-35 b. conc. in B-20 waterproofing membrane, 0.657 mi. Bridge No. HU 250-01 over Rattlesnake Creek, U. S. R. 250, Erie and Huron Counties***Ohio Engineering Co., 105 Sixth St., Lorain, O., $387,787, est. $377,100, b. conc. resurf. 4.771 mi. U. S. R. 20, Huron and Lorain Counties**A. J. Baltes, Inc., 111 Olive St., Norwalk, O., $1,167,248, est. $1,182,600, C. conc., b. conc., 5.8 mi. U. S. R. 20, Bridge No. SA-20-20, Sandusky Co.***Byrnes-Conway Co., 50 Oak St., St. Bernard, Cincinnati, O., $60,744, est. $59,750, b. conc. resurf. 1.743 mi. U. S. R. 22, Hamilton Co., OHIO. Grand total $2,009,024. State Hy. Dpt., Columbus, O. Bids Feb. 27.

▲ W. J. Meagher & Sons, 1300 S. Water St., Bay City, Mich. Contract Awarded, $1,725,000. rein.-con. water intake 20,800 ft. 48 in. steel pipe concrete alternate, 1,165 ft. conduit, BAY CITY, MICH. City, George MacPhail, mgr., Bay City, Mich. CD 2/1 under LB.

CONTRACTS—BUILDINGS

▲ S. N. Nielson Co., 3059 Augusta Blvd., Chicago 12, Ill., Contract Awarded, $5,000,000. KIRK YARD impvy. electrification switches, new yard, office, labor bldg., freight handling facilities, control towers, interlocking towers, GARY, IND. Elgin, Joliet & Eastern R. R. Kirk Yard, Gary, Ind. Bids Nov. 15, awarded Mar. 5. CD 11/16. Sverdrup & Parcel, 915 Olive St., St. Louis, Mo., archts.

Superior Constr. Co., 1800 E. 7 St., Gary, Ind. Contract Awarded, $979,000, general constr., HOSPITAL AUDITORIUM and 2 THERAPY UNITS addns., WESTVILLE, IND. State P. Wks. Supply Div., W. R. Mybeck, dir., State House, Indianapolis, Ind. Bids Dec. 20, awarded Feb. 28. CD 1/4, under LB.

Harry G. Herizengo, 10141 Trumbull Ave., Elmwood Park, Ill., Owner Builds. $600,000, 60 one story brick HOMES, ELMWOOD PARK, ILL. Howard Peck, 140 and Reigle Rds., Homewood, Ill., archt. Awarded Mar. 6.

▲ Glendale Homes, Inc., 1940 N. Harlem St., Elmwood Park, Ill., Owner Builds. $1,000,000, 100 two story, brick RESIDENCES, FRANKLIN PARK, ILL. Jacob B. Ziegler, 3647 N. Kilpatrick St., Chicago 41, Ill., archt. Awarded Mar. 2.

▲ Robert Bartlett Co., 111 W. Washington St., Chicago 2, Ill., Owner Builds, $1,000,000. small HOMES south of LAGRANGE, ILL.

▲ E. F. Shanahan Co., Inc., 7442 S. Vincennes Ave., LaSalle, Ill. Contract Awarded. $1,715,139, est. $1,715,000. 2 story, no bsmnt., 200-unit HOUSING UNITS, LASALLE, ILL. Housing Auth. of LaSalle Co., LaSalle, Ind., Lankton & Ziegele, 100 Main St., Peoria, Ill., archts. CD 1/11, under LB.

▲ Klug & Smith Co., 4425 W. Mitchell St., Milwaukee, Wis., Contract Awarded, $1,000,000. PLANT to manufacture temperature and air conditioning equipment, MILWAUKEE, WIS. Johnson Service Co., 507 East Michigan Ave., Milwaukee, Wis.

▲ Sullivan-Smith, Inc., 5623 N. Telegraph Rd., Dearborn, Mich. Owner Builds. $4,000,000. three hundred and fifty 1½ story, brick, single HOUSES, Venice, Hollywood, Texas, Edgewood, Carlysle and Houston Sts., DEARBORN, MICH.

▲ Darin & Armstrong, Inc., 2041 Fenkel Ave., Detroit, Mich. Contract Awarded. $1,200,000. 1 story, brick, concrete FACTORY addn., Hartee and Plymouth Sts., LIVONIA, Mich. Detroit Transmission Div. General Motors Corp., 5140 Roopelle St., Detroit, Mich. Argonaut Realty Div., 304 General Motors Bldg., Detroit, Mich., archt.

Beckering Constr. Co., 2140 Horton St. S. E., Grand Rapids, Mich. Contract Awarded. $770,000. 1 story, 170x280 ft., and 60x500 ft., concrete, steel, brick FACTORY addn., ST. JOHNS, MICH. Federal Mogul Corp., E. G. Pett, genl. mgr., St. Johns, Mich.

WEST OF MISSISSIPPI

BIDS ASKED—HEAVY CONSTRUCTION

STATE HIGHWAY LETTINGS

BRIDGES

March 27 — Colorado
March 30 — Missouri

STREETS AND ROADS

March 30 — Missouri
April 3 — Iowa

Wyo., Newcastle—LANDING STRIP, etc.—B.A. 3/26—City, grading 4,741 ft. landing strip, 250 ft. wide, grading for taxiway, apron, surf. all above, installing culvert pipe, marks, constr. 4900 ft. barbed wire fence. Julian Staven, Rapid City, S. D., engrs.

Tex., Dallas—B.A. 3/29—Dallas County Road Dist. 1, Court House, Dallas, Forest Ave. Viaduct in Trinity River Sect. $200,000. Plans deposit $25. Jack Davis, county engr. CD 10/13, under LB.

Tex., Fort Worth—B.A. 3/29—City, W. O. Jones, mgr. East Side water mains from 8- to 24-in. inclusive, $450,000. Plans deposit $25. Joe J. Rady, 811 Insurance Bldg., engr. CD 2/14/49.

Tex., Midland—B.A. 3/29—Comrs., Midland Co., Midland, 18- to 72-in. concrete storm sewers, $400,000. Plans deposit $25. Hunter & Studdert, 210 W. Indiana St., engrs. CD 12/12.

† Nebraska—B.A. 3/30—U. S. Eng., 601 Davidson Bldg., Kansas City, Mo., irrigation outlet works, Harlan County Dam and Reservoir, on Republican River, approx. 8 mi. east of Alma, Serial No. CIVENG 23-028-51-95.

† Okla., Camp Gruber—B.A. 3/30—U. S. Eng., P. O. Box 61, Tulsa, Zone 1, rebuilding spillway for Lake Greenleaf, Muskogee Co. $265,000.

† Tex., Killeen—OPERATIONS BLDG., etc.—B.A. 3/30—U. S. Eng., 606 Santa Fe Bldg., Galveston, operations bldg.; control tower and fire and crash station, Gray Air Force Base, Fort Hood Inv. No. ENG 51-243-51-52.

† Tex., San Antonio—RADAR and GCA FACILITIES—B.A. 3/30—U. S. Eng., 606 Santa Fe Bldg., Galveston, airport radar and GCA facilities, Kelly Air Force Base, Inv. No. ENG 41-243-51-53. CD 1/5.

Tex., Mt. Vernon—B.A. 3/31—City, WW imprvs. treatment plant, new supply lake, pump station, 12,000 lin. ft. raw water transmission line. $125,000. Walter Fix, Paris, and Wisenbaker, Fix & Assoc., 110½ Bois d'arc, Tyler, engrs. CD 1/26.

Tex., Mt. Vernon—B.A. 3/31—City, sanitary sewerage sys. extens. $60,000. Plans deposit $25. Walter Fix, Paris, and Wisenbaker, Fix & Assoc., 110½ S. Bois d'Arc, Tyler, engrs.

† Montana—B.A. 4/3—Bureau Reclamation, Hungry Horse Gov't Camp., Columbia Falls, earthwork and structures, except bridges, Station 0 plus 00 to Station 2841 plus 88, West Side Forest Service Rd., Hungry Horse Reservoir on west and south side of South Fork of Flathead River, about 10 mi. to 40 mi. southeast of Columbia Falls, Hungry Horse Proj. Spec. 100C-12. CD 2/8.

† North Dakota—CONTROLLING STATION SUPERVISORY CONTROL, etc.—B.A. 4/3—Bureau Reclamation, Dpt. Interior, Bldg. 1-A, Denver Federal Center, Denver, Colo., furnishing del. f.o.b. cars shipping point or f.o.b. cars Jamestown, Carrington, Devils Lake, Leeds, Rugby, Lakota, Edgely, Forman and Bismarck, controlling station supervisory control and telemetering switchboard section and associated equip. for Jamestown sub-station for supervisory control of Carrington, Devils Lake, Leeds, Rugby, and Lakota substations from and telemeter to Jamestown sub-station; controlled-station supervisory control and telemetering switchboard section and associated equip. for Carrington sub-station for supervisory control of Carrington sub-station from and telemeter to Jamestown sub-station; for Devils Lake sub-station for supervisory control of Devils Lake sub-station from and telemeter to Jamestown sub-station; for Leeds sub-station for supervisory control of Leeds sub-station from and telemeter to Jamestown sub-station; for Rugby sub-station for supervisory control of Rugby sub-station from and telemeter to Jamestown sub-station; for Lakota sub-station for the supervisory control of Lakota sub-station from and telemeter to Jamestown sub-station; for Jamestown sub-station for supervisory control of Edgeley and Forman sub-stations from and telemeter to Jamestown sub-station; for Edgeley sub-station for supervisory control of Edgeley sub-station from and telemeter to Jamestown sub-station; for Forman sub-station for supervisory control of Forman sub-station from and telemeter to Jamestown sub-station; for Bismarck sub-station for supervisory control of Bismarck sub-station from and telemeter to Jamestown sub-station, Missouri-Souris Dist. Transmission Div., Missouri Basin Project, Inv. No. DS-3335.

† South Dakota—B.A. 4/3—U. S. Eng., 1709 Jackson St., Omaha Neb., bank slope protection, Sect. 1, Fort Randall Reservoir Proj., near Chamberlain, Inv. 98. CD 3/6.

▲ Tex., Dallas—B.A. 4/3—Mayor and City Council, City Hall, Main and Harwood Sts., White Rock Sewage Treatment Plant, Contr. 360-B. $2,300,000. Plans deposit $25. Powell & Powell, Thomas Bldg., consult. engrs. CD 6/26.

Tex., Houston—Bids Asked—Jess Little, 2902 Midlane St., water lines. $40,000.

Tex., Houston—BIDS ASKED—Jess Little, 2902 Midlane St., construction and asph. paving in winding streets and esplanade on Bayou Rd. $275,000.

Tex., Houston—Bids Asked—Jess Little, 2902 Midlane St., Houston, Tex., storm sewers, $60,000; sanitary sewers, $65,000.

BIDS ASKED—BUILDINGS

Ia., Bloomfield—POWER PLANT—B.A. 3/27—City, power plant bldg. addns., one 1,000 kw. diesel engine.

Ia., Decorah—COLLEGE—B.A. 3/27—Luther College, Decorah, new main building. $500,000. Charles Altchiisch, Decorah, archt. CD 2/27/48.

Minn., Fairmont—CHURCH—B.A. 3/27—Church of St. Paul, Rev. A. P. Layne, Fairmont, church and rectory. $300,000. Hills, Gilbertson & Hayes, 1409 Willow St., Minneapolis, archts. CD 3/13.

Minn., Ceylon—SCHOOL—B.A. 3/27—Bd. Educ., S. S. Vols. Clk., 2 story, 90x100 ft. wing, 96x100 ft. auditorium wing school addn. $300,000. A. G. Plagens, 379 University Ave., St. Paul, archt. CD 1/8.

Web., Hebron—POWER HOUSE—B.A. 3/27—City, power house bldg., power equip., power plant installation and power plant wiring. $310,000. Henningson, Durham & Richardson, Standard Oil Bldg., Omaha, engrs. CD 3/6, under LB.

Minn., Alexandria—CHURCH—B.A. 3/28—Calvery Lutheran Church, Alexandria, 1 and 2 story, 103x143 ft. church. $300,000. Armstrong & Schlichting, 5 E. 22 St., Minneapolis, archts.

▲ Minn., St. Paul—HOUSING—B.A. 3/28—St. Paul Housing & Redevelopment Auth., A. Karen, exec. dir., 1745 City Hall & Court House, 418 unit housing, Kennard St. and Old Hudson Rd. $4,000,000. CD 11/3/49.

Minn., Appleton—SCHOOL—B.A. 3/29—Bd. Educ., F. Meyer clk., 1 story, 100x270 ft. school. $310,000. Plans deposit $10. H. H. Swanson, 500 Sexton Bldg., Minneapolis, archt. CD 1/8.

▲ Tex., Corpus Christi—GRAIN ELEVATOR—B.A. 3/29—Nueces County Navigation Dist., Guggenheim-Cohn Bldg., over 2 m. bu. rein.-con. type grain elevator (headhouse over 200 ft. high), $1,500,000. Plans deposit $50, earthwork drainage; excavating in elevator area, $80,000; water sys. in elevator area, $40,000. Horner & Wyatt, 516 Dwight Bldg., Kansas City 6, Mo. engrs. CD 11/14.

Tex., Denison—DWELLINGS—B.A. 3/29—Denison Housing Auth., Denison, 100 dwelling units for total 30 bldgs.; 2 administration bldgs.; site development.

$750,000. Plans deposit $50. Boese & Harkrider, T & P Bldg., Fort Worth, engrs. CD 10/28/49.

N. M., Farmington—HOSPITAL—B.A. 3/30—San Juan Hospital Assn., Farmington, 1 story hospital. $400,000. Max Flatow & Jason Moore, 1820 Campus Blvd., Albuquerque, engrs. CD 11/3.

▲ **Mo., Chamois**—POWER PLANT—B.A. About 4/1—Central Electric Power Co., 302½ E. High St., Jefferson City, general contract power plant, $3,000,000. H. A. Kuljian & Co., 1200 N. Broad St., Phila., Pa., consult engrs. CD 12/1/49, under Unclassified, Missouri.

LOW BIDDERS—BUILDINGS

▲ **Gust K. Newberg Co.**, 2040 N. Ashland St., Chicago 14, Ill. Low Bidder. $8,647,000. constr. Mayo Memorial MEDICAL CENTER at University of Minnesota, MINNEAPOLIS, MINN. University of Minnesota, R. S. Callaway, purch. agt., 323 Admin. Bldg., Main Campus, Minneapolis, Minn. Bids Feb. 21. CD 1/2.

Anton Bros. Constr. Co., 1571 E. National St., Springfield, Mo. Low Bidder. $548,000. 3 story, 191x234 ft., 75,000 sq. ft. COLD STORAGE bldg., Grant St. between Phelps and Tampa Sts., SPRINGFIELD, MO. Producers Produce Co., 501 N. Main St., Springfield, Mo. Bids Feb. 27. CD 2/27.

Ennis Housing Auth., Ennis, Tex. cancelled bids to have been opened Mar. 10, 40 low cost HOUSING units for Negroes, $400,000; 50 low cost HOUSING units for Whites, $425,000 ENNIS, TEX. CD 2/2.

▲ **Gilbert Falbo Co.**, 107 Morales St., San Antonio, Tex. Low Bidder $1,594,542, est. $1,428,000, frame type const.***R. F. Ball Constr. Co., 3200 W. Dallas St., Houston, Tex. $1,734,115, fireproof type, Latin-American 204 HOUSING units for total 39 bldgs., Tex. 6-8, SAN ANTONIO, TEX. San Antonio Housing Auth., 400 Labor St., San Antonio, Tex. Frank T. Drought, 117 W. Pecan St., engr., Ford & Rogers, Willow Way, Nayfach-Richey, 715 Alamo Natl. Bldg., R. H. Hugman, 107½ W. Commerce St., John M. Marriott, 905 Frost Bank Bldg., all San Antonio, archts. Bids March 9.

▲ **R. F. Ball Constr. Co.**, 3200 W. Dallas St., Houston, Tex. Low Bidder, $1,500,000. 202 frame type HOUSING units, concrete slab fdn. for Negroes on Seguin Rd. (Tex 6-9), SAN ANTONIO, TEX. San Antonio Housing Auth., 419 S. St. Marys St., San Antonio, Tex. Bids Mar. 13. CD 2/14.

▲ **Olsen Constr. Co.**, 323 Santa Fe Dr., Denver, Colo. Low Bidder $1,574,000. General constr. 2, 3 and 4 story brick, native sandstone (Italian Style, MEMORIAL STUDENT CENTER, BOULDER, COLO. University of Colorado, Boulder, Colo. Bids Mar. 1. CD 12/6/49.

Mellwin Constr. Co., 35 South Fox St., Denver, Colo., Low Bidder, $655,000, est. $500,000, 2 story, full bsmnt., 90x192 ft. COURT HOUSE, GOLDEN, COLO. Bd. Comrs. Jefferson Co., Golden, Colo. Bids Feb. 19. CD 2/27.

CONTRACTS—HEAVY CONSTRUCTION

Hallett Constr. Co., Crosby, Minn. Contract Awarded. $632,877. paving 13 mi. between SAR 9 in Shelly, 2 mi. north of north limits of Climax, Norman and Polk Counties, MINNESOTA. State Hy. Dpt., St. Paul, Minn. CD 3/2 under LB.

▲ **Peter Kiewit Sons' Co.**, Box 875, Sheridan, Wyo., Contract Awarded, $90,550, est. $108,712, crushed grav. base course, plant mix, etc. 7.126 mi. Wyo. Proj. F-162 (14), Fremont Co.; $85,859, est. $96,-123, crushed grav. plant mix etc. 6.725 mi. Wyo. Proj. FI-222 (4), Sheridan and Johnson Counties*** Inland Constr. Co., 3867 Leavenworth St., Omaha, Neb., $518,899, est. $508,947, base course surf., plant mix, etc. 29.789 mi. Wyo. Proj. F-229 (6), Sect. II and State Proj. 2676, Niobrara and Weston Counties***Summit Constr. Co., Rapid City, S. D., $323,264, est. $316,967, base course surf., plant mix surf., 11.565 mi. Wyo. Proj. No. F-229 (6), Sect. I and S-023 (3), Combined, Niobrara Co.*** N. A. Nelson Constr. Co., Sheridan, Wyo., $278,410, est. $278,968, base course surf. oil tr. by road mix method, 4 cont. plate girder spans, 76 ft., 91 ft. 3 in., 76 ft., over Green River, etc. 1.987 mi. Wyo. Proj. FI-58 (10), Sweetwater Co., WYOMING State Hy. Dpt., Cheyenne, Wyo. Grand total $1,296,-982. Bids Feb. 27, awarded Feb. 28. CD 2/20.

Northwestern Eng. Co., E. 60 Ave. and Hy. 6, Denver, Colo., Contract Awarded. $572,406, est. $579,423, crushed gray, base course, plant mix surf., etc. 25.205 mi, Wyo. Proj. Nos. LI-44(6), FI-59(6) and FI-221(5) combined, Carbon Co.; Schmidt Constr. Co., Grand Junction, Colo., $403,971, est. $373,483, crushed grav., etc. 11.827 mi. Wyo. Proj. F-136 (3), Lincoln Co., WYOMING. State Hy. Dpt., Cheyenne, Wyo. Bids Feb. 27, awarded Feb. 28 and Mar. 1 respectively. CD 2/20.

CONTRACTS—BUILDINGS

Fruin-Colnon Contg. Co., 1706 Olive St., St. Louis 3, Mo. Contract Awarded. $725,000. steel, concrete, brick 81,600 sq. ft. paint mfg. PLANT on 5½ acre tract, fronting 823 ft. on Page Blvd. in 7500 block, PAGEDALE (ST. LOUIS 14, P. O.), MO. The Reardon Co., David H. Moran, pres., 2208 N. Second St., St. Louis 6, Mo.

▲ **G. L. Tarlton Contg. Co.**, 5505 Dale Ave., St. Louis 10, Mo. Contract Awarded. $2,000,000. 10 story, ground floor 105x114 ft. to 7 floor, 42x72 ft. above, brick, hollow tile, steel, stone, concrete David P. Wohl, Jr. Memorial HOSPITAL adjacent to Washington University Medical School, near Euclid Ave., ST. LOUIS, MO. Washington University, A. H. Compton, chancellor, Skinker and Lindell Blvds., St. Louis 3, Mo. Jamieson & Spearl, 1696 Arcade Bldg., 812 Olive St., St. Louis 1, Mo., archts. Wm. C. E. Becker, Ambassador Bldg., 411 N. 7 St., St. Louis 1, Mo. engrs. Bids Feb. 15, awarded Mar. 10. CD 11/29/49.

Aton Bros. Constr. Co., 1571 E. National St., Springfield, Mo. Contract Awarded. $548,000. 3 story, 191x234 ft., 75,000 sq. ft. cold storage PLANT, Grant St. between Phelps and Tampa Sts., SPRINGFIELD, MO. Producers Produce Co., 501 N. Main St., Springfield, Mo. CD 3/9, under LB.

▲ **George B. Emery Jr.**, Inc., 1305 Lane St., Topeka, Kan. Owner Builds. $3,000,000. HOUSING, TOPEKA, KAN.

C. D. Wilson, 518 South B St., Muskogee, Okla., Contract Awarded. $598,875. Negro HIGH SCHOOL, MUSKOGEE, OKLA. Bd. Educ., Muskogee. Bids Feb. 19, awarded March 7. CD 1/22.

Manhattan Constr. Co., Manhattan Bldg., Muskogee, Okla. Contract Awarded. Approx. $900,000. 4 addnl. story, 57,000 sq. ft. CHAMBER OF COMMERCE Bldg., TULSA, OKLA. Chamber of Commerce, Tulsa Bldg., Tulsa 2, Okla. J. R. Koberling, Court Arcade, Tulsa, Okla., archt.

Tellepsen Constr. Co., 1710 Telephone Rd., Houston, Tex. Contract Awarded. $845,000. multiple story OFFICE, MIDLAND, TEX. Humble Oil & Refining Co., Humble Bldg., Houston, Tex. CD 2/20.

▲ **Al Johnson Constr. Co.**, 608 Foshay Tower, Minneapolis 2, Minn. Contract Awarded. Approx. $11,250,-000. Proj. 1, aluminum production pot line, incl. line, bldgs. other allied work at Fort Point; Proj. 2, aluminum production line, incl. required bldgs., line, allied work, Port Neches; Proj. 3, 40,000 kw powerhouse, Port Lavaca; Proj. 4, 40,000 kw, electric powerhouse, Port Neches, PLANTS, etc. PORT LAVACA, TEX. Aluminum Corp. of America, Port Lavaca, Tex. CD 1/16.

FAR WEST

BIDS ASKED—HEAVY CONSTRUCTION

STATE HIGHWAY LETTINGS

BRIDGES
April 18
California

STREETS AND ROADS
April 4
California

† **Washington**—TRANSMISSION LINE—B.A. 3/29—Bonneville Power Admin., 827 N. E. Oregon St., Portland, Ore. constr. 105.5 mi. Midway-Grand Coulee No. 3, 230-kv transmission line, Benton, Grant, Douglas and Okanogan Counties. Plans deposit $25. L. C. Stewart, 827 N. E. Oregon St., Portland, Ore., engr. CD 2/5.

Calif., Redding—B.A. 4/2—Clerk Shasta Co., Hall of Records, county highway between 1 mile south of Igo and Ono. Plans deposit $25.

† **Oregon-California**—B.A. 4/4—Bureau Reclamation, Dpt. Interior, Klamath Falls, Ore., earthwork and structures, lower Lost River channel imprvt., Station 116 to Station 397 plus 01.8 and north main dike, Station 4 plus 00 to Station 315 plus 00, in Lake sump and N canal banks and pumping plant No. 5 outlet, Modoc Unit, Tule Lake Div., Klamath Proj. is near Tulelake, Calif., Spec. DC-3337, adv. ENR.

† **Oregon**—SITE GRADING, etc.—B.A. 4/4—U. S. Eng., 628 Pittock Block, Portland, Zone 5, site grading and planting of hatchery and residential areas at Marion Forks Salmon Hatchery, approx. 17 mi. east of Detroit, Serial No. CIVENG 35-026-51-199.

† **Washington**—B.A. 4/4—Bureau Reclamation, Dpt. Interior, Coulee Dam, constr. State Hy. 10-A, grading, paving streets and parking areas and constr. drain inlets, sidewalks, curbs, retaining wall in town of Coulee Dam, Coulee Dam Div., Columbia Basin Proj., Spec. DC3336. L. N. McClellan, Bldg. 1-A, Denver Federal Center, Denver, Colo., ch. engr.

† **Oregon**—B.A. 4/5—U. S. Eng., 19 E. Poplar St., Walla Walla, Wash., remaining portions spillway, powerhouse and appurtenance structures at McNary Dam, Serial No. CIVENG 45-164-51-40.

BIDS ASKED—BUILDINGS

† **Wash., Arlington**—FIRE STATION, etc.—B.A. 3/30—P. Wks. Officer, 13th Naval Dist., 1611 W. Wheeler St., Seattle, 72x114 ft. fire station, 40x120 ft. general storage bldg. 40x120 ft. shop, 25x120 ft. vehicle parking bldg., 20x40 ft. paint and oil storage bldg., 17x24 ft. gas station at Jim Creek Naval Communication Station, Spec. 26937. Plans deposit $20. CD 7/2/47, under Unclassified.

▲ **Calif., Sacramento**—OFFICE—B.A. 4/3—State Div. Architecture, P. Wks. Bldg., Sacramento, 3 story 300,000 sq. ft. headquarters office bldg. for Dpt. Motor Vehicles. Plans deposit $75. CD 9/15/49.

Calif., San Francisco—MUSIC and SPEECH—B.A. 4/3—State Div. Architecture, P. Wks. Bldg., Sacramento, music and speech bldg., San Francisco State College, Plans deposit $25. CD 9/13/49.

▲ **Ariz., Phoenix**—HOUSING—B.A. 4/4—City, First Ave. and Washington St., 484-unit housing, $4,348,600. Lescher & Mahoney, Title & Trust Bldg., Phoenix, archts.

▲ **Calif., Long Beach**—NATATORIUM, etc.—B.A. 4/5—Bd. Educ., 715 Locust Ave., natatorium, gymnasium at Polytechnic School. $1,500,000. Plans deposit $50. Extended date. CD 2/21.

LOW BIDDERS—HEAVY CONSTRUCTION

† **Electric Constr. Co.**, 1650 Center St., Tacoma, Wash. Low Bidder. $894,388, 100.7 mi. Big-Eddy-Goldendale-Midway 230 kv line, Inv. 5619, OREGON and WASHINGTON. Bonneville Power Admin., 827 N.E. Oregon St., Portland, Ore. Bids Mar. 2. CD 2/21.

▲ **Smith & White**, Pier 65, Seattle, Wash., Low Bidder, $1,547,000. 71 mi. double-circuit 230-kv transmission line, Bacon Creek to Bothell 9 mi. 2 double circuit 115 volt transmission lines, Bathell to Seattle, SEATTLE, WASH. City, County-City Bldg., Seattle, 4, Wash. Bids Mar. 7. CD 2/20.

▲† **General Constr. Co.**, 3840 Iowa St., Seattle, Wash., Low Bidder, $1,515,700, major reconstruction Pier 91, involving 112,000 lin. ft. new piling, Specs. 26593, SEATTLE, WASH. P. Wks. Officer, 13th Naval Dist., 1611 W. Wheeler St., Seattle, Wash. Bids Mar. 8. CD 2/15.

† **Pacific Sand & Gravel Co.**, Centralia, Wash., Low Bidder, $622,841, est. $754,321, 3,000 ft. extension north-south runway at McChord Air Force Base, Serial No. Eng 45-108-51-118, TACOMA, WASH. U. S. Eng., 4735 E. Marginal Way, Seattle, 4, Wash. Bids Mar. 9.

▲ **Guy F. Atkinson Co.**, Box 259, Long Beach, Calif., Low Bidder, $3,389,650, bridge alterations, constr. 3 new bridges approaches on Colorado Freeway Pasadena, Los Angeles Co.; Chas. MacClosky Co., 112 Market St., San Francisco, Calif., $273,820, rein.-con. and structural steel bridge across San Gabriel River on Beverly Blvd., Los Angeles, Los Angeles Co., CALIFORNIA. State Hy. Dpt., Sacramento, Calif. Bids Mar. 8. CD 2/15.

United Concrete Pipe Corp., Box 425, Baldwin Park, Calif., Low Bidder, $617,724, grading 5.6 mi. between Merced River Bridge and Turlock Overhead, Merced and Stanislaus Counties***G. W. Ellis Constr. Co., 8240 Lankershim Blvd., North Hollywood, Calif., $96,587, plant mix surf., drainage facilities, 1.8 mi. in city limits of Bishop, Inyo Co. ***P. J. Moore & Son, P. O. Box 515, Tracy, Calif., $87,187, resurf. 4.1 mi. between Cottonwood Creek and north limits of Madera, Madera Co., CALIFORNIA. State Div. Hys., Sacramento, Calif. Bids Mar. 7. CD 2/15.

Michael Izzi, 1033 Arden Dr., Temple, City, Calif., Low Bidder, $547,479 cement, $699,392 tar, 30 mi. sanitary sewers, COSTA MESA, CALIF. Costa Mesa Sanitary Dist., Costa Mesa, Calif. Bids Mar. 8. CD 3/1.

† **Herman Lawson Co.**, 465 Tehama St., San Francisco, Calif., Low Bidder, $553,580, air cooling coils for wind tunnel A-5307A, MOFFETT FIELD, CALIF. National Advisory Com. for Aeronautics, Ames Aeronautical Laboratory, Moffet Field, Calif. Bids Mar. 5.

LOW BIDDERS—BUILDINGS

C. H. Elle Constr. Co., P. O. Box 1010, Pocatello and Reynolds & Walker, Box 363, Twin Falls, Idaho, Low Bidder. $605,162, HOSPITAL, JEROME, IDAHO. Jerome Hospital Assn., Inc., Jerome, Idaho. Bids Mar 1. CD 2/7.

▲† **Sound Constr. & Eng. Co.**, 1300 Aloha St., Seattle, Wash., Low Bidder, $1,273,490, est. $1,164,206, POST ENGINEERING BLDG. QUARTERMASTER FACILITY, PUMPHOUSE, GAS STATION and OFFICE ORDNANCE FACILITY, etc. NORTH RICHLAND, WASH. U. S. Eng., 4735 E. Marginal Way, Seattle, 4, Wash. CD 1/10, under LB.

▲† **Sound Constr. & Eng. Co.**, 1300 Aloha St., Seattle, Wash. Low Bidder, $1,146,515, est. $858,753. 4 BATTALION MESS BLDGS. and HOSPITAL, NURSES QUARTERS, Inv No. 45-108-51-97, Unit 2, NORTH RICHLAND, WASH. U. S. Eng., 4735 E. Marginal Way, Seattle, 4, Wash. Bids Mar. 1. CD 1/26.

▲ **Guy F. Atkinson Co.**, 10 W. Orange Ave., South San Francisco, Calif., Low Bidder, $14,690,000, POWERHOUSE, tunnel appurtenances at Ross Dam, SEATTLE, WASH. City, County-City Bldg., Seattle, Wash. Bid Mar. 7. CD 2/21.

Herbert E. Ellis, P. O. Box 146, Sta. A, Berkeley, Calif. Low Bidder. $696,708, Burbank Junior High SCHOOL, University Ave., Bonair and Addison Sts., BERKELEY, CALIF. Bd. Educ., Rose and Walnut Sts., Berkeley, Calif. Bids Mar. 8. CD 2/13.

▲† **H. B. Nicholson**, 117 E. Colorado St., Pasadena, Calif. **N. P. Van Valkenburgh**, 8609 San Vincente, South Gate, and **J. L. Ferry**, 5205 San Fernando Rd., Glendale, Calif. Low Bidder. $2,896,000, 210 family HOUSING UNITS, Spec. 28689, INYOKERN, CALIF. Yards & Docks Annex, Navy Dpt. Naval Ordnance Sta., Inyokern, Calif. Bids Mar. 6. CD 2/27.

CONTRACTS—HEAVY CONSTRUCTION

▲† **Donovan-James Constr. Co.**, Arctic Bldg., Seattle, 4, Wash., Contract Awarded. $3,839,148, second-stage construction at Albeni Falls Dam, incl. constr. spillway dam, Serial No. CIVENG 45-108-51-38, Priest River, IDAHO. U. S. Eng., 4735 E. Marginal Way, Seattle, 4, Wash. Bids Mar. 1. CD 3/6, under LB.

▲† **M. H. Hasler Constr. Co. and D. H. Constr. Co.**, P. O. Box 387, Santa Ana, Calif. Contract Awarded. $2,194,484, constr. Mormon Island Auxiliary Dam, Folsom Reservoir Proj., Serial No. CIVENG 04-167-51-41, CALIFORNIA. U. S. Eng., 1209 Eight St., Sacramento, Calif. Bids Feb. 20, awarded Mar. 8. CD 2/28, under LB.

† **Foster & McHarg**, P. O. Box 244, Riverside, Calif. Contract Awarded. $522,639, levee at 2 sites on east levee of Feather River, south levee of Honcut Creek, east levee near Marysville, CALIFORNIA. U. S. Eng., Wright Bldg., Sacramento, Calif. Bids Feb. 27, awarded Mar. 8. CD 3/7, under LB.

▲ **Griffith Co.**, 1060 S. Broadway, Los Angeles, Calif. Contract Awarded. $1,221,641, plant mix surf. 3.8 mi. between Palm City and Chula Vista, San Diego

Co., CALIFORNIA, State Hy. Dpt., 120 S. Spring St., Los Angeles, Calif. Bids Feb. 23, awarded Mar. 9. CD 2-28, under LB.

Granite Constr. Co., Box 900, Watsonville, Calif. Contract Awarded, $630,699, plant mix surf. 2 mi. between Gaviota and Las Cruces, Santa Barbara Co., CALIFORNIA, State Div. Hys., Sacramento, Calif. Bids Feb. 21, awarded Mar. 7. CD 2-28, under LB.

▲ **United Concrete Pipe Corp. & Ralph A. Bell**, Box 425, Baldwin Park, Calif. Contract Awarded, $1,396,954, grading, surf., structures, etc. on Santa Ana Freeway, Los Angeles, Los Angeles Co., CALIFORNIA, State Hy. Dpt., 120 S. Spring St., Los Angeles, Calif. Bids Mar. 1, awarded Mar. 9. CD 3/8, under LB.

CONTRACTS—BUILDINGS

† **Jacobsen Constr. Co.**, 724 S 3rd East St., Salt Lake City, Utah. Contract Awarded, $799,773, construct 8 pre-fabricated steel BARRACKS, 1 pre-fabricated steel MESS HALL and WAREHOUSE, pre-fabricated steel RECREATIONAL bldg., 1 pre-fabricated steel ADMINISTRATION bldg., 200 capacity trailer park, incl. roads and utilities, Dugway Proving Ground, TOOELE, UTAH. U. S. Eng., Wright Bldg., Sacramento, Calif. CD 1-26.

▲ **C. L. Peck Co.**, 816 W. 5 St., Los Angeles, Calif., Contract Awarded, $2,000,000, administrative and engineering OFFICE, BURBANK, CALIF., Lockheed Aircraft Corp., 2555 N. Hollywood Way, Burbank, Calif., Welton Becket & Assocs., 5657 Wilshire Blvd., Los Angeles, Calif., archts.

▲ **Louis C. Dunn Co.**, 3101 Wilshire Blvd., Los Angeles, Calif., Contract Awarded, $1,055,700, reinforced masonry, steel frame WAREHOUSE, EL SEGUNDO, CALIF., Douglas Aircraft Co., Inc., 827 Lapham St., Los Angeles, Calif., E. W. Taylor, 803 W. 3 St., Los Angeles, Calif., engr.

Highland Homes, Inc., Box 686, Balboa, Calif., Contract Awarded, $589,000, DWELLINGS, LONG BEACH, CALIF., Home Investment Co., 4439 Atlanta Ave., Long Beach, Calif., Poper & Lockett, Farmers & Merchants Bldg., Long Beach, archts.

▲ **Grandview Bldg. Co.**, 470 S. Beverly Dr., Beverly Hills, Calif. Owner Builds, $1,555,000, 187 frame, stucco DWELLINGS in Tract 16513, MONTEREY PARK, CALIF. CD 12/5.

ALASKA

BIDS ASKED—HEAVY CONSTRUCTION

† **Alaska**—HEADQUARTERS BLDG., etc.—B.A. 4/5—U. S. Eng., (APO 942, c/o PM, Seattle, Wash.) Anchorage, headquarters bldg., task force with auditorium wing, Ladd Air Force Base, Inv. 595-507-51-68. Plans deposit $25. CD 1/14.

Alaska—QUARTERS—B.A. 4/10—U. S. Eng. (APO 942, c/o PM, Seattle, Wash.), Anchorage, fourteen 8-family row type quarters at Elelson Air Force Base and twenty three 8 family row type quarters at Ladd Air Force Base, Inv. No. 595-507-51-93. Plans deposit $50. Extended date. CD 12/28.

BIDS ASKED—BUILDINGS

† **Alaska, Fort Richardson**—BATTALION HEADQUARTERS, etc.—B.A. 4/5—U. S. Eng. (APO 942, c/o PM, Seattle, Wash.) Anchorage, 2 battalion headquarters and supply bldgs., Inv. 595-507-51-72, $400,000. Plans deposit $25. Naramore Bain, Brady & Johanson, 904 7 Ave., Seattle, Wash. archts. CD 3/14.

LOW BIDDERS—HEAVY CONSTRUCTION

▲† **J. C. Boespflug Constr. Co. and S. Birch & Sons**, 1912 4 Ave. S., Seattle, Wash. Low Bidder, $3,491,575, est. $3,825,069, 18 male bachelor officers' quarters and 5 female bachelor officers' quarters, Inv. 595-507-51-42, 25 Sumpert Air Force Base, ALASKA. U. S. Eng. (APO 942, c/o PM, Seattle, Wash.), Anchorage. Bids March 7. CD 2/14.

▲† **J. C. Boespflug Constr. Co. and S. Birch & Sons**, 1912 4 Ave., Seattle, Wash. Low Bidder, $1,369,939, est. $1,418,240, Bachelor officers' quarters and female bachelor officers' quarters, Inv. S 95-507-51-62, Ladd Air Force Base, ALASKA, U. S. Eng. (APO 942 c/o PM, Seattle, Wash.), Anchorage, Alaska. Bids March 7. CD 2/15.

CANADA

BIDS ASKED—HEAVY CONSTRUCTION

▲ **Ont., Ottawa**—B.A. 3/27—City Bd. Control, Ottawa, West Nepean Collector sewers. Sect. A, Booth St. to Smyrle Ave., via Wellington St., Canadian Pacific Ry. right-of-way, 7,585 lin. ft. 6 ft. 6 in. x 5 ft. 6 in. sewer in tunnel, 15 manholes. Sect. B, Smyrle Ave. to Roosevelt Ave. via Canadian Pacific Ry. right-of-way, 2,606 lin. ft. 6 ft. 6 in. x 5 ft. 6 in. sewer in tunnel, 3,878 lin. ft. 5x5 ft. sewer in tunnel and 13 manholes. Approx. $2,000,000. J. H. Irvine, c/o owner, engr. CD 3/23.

BIDS ASKED—BUILDINGS

▲ **Ont., Toronto**—PLANT, etc.—B.A. 3/26—Thor-Canadian Ltd., 885 Dupont St., Toronto, 100,000 sq. ft. plant for assembly lines and office, auditorium, cafeteria and library on 17 acre site, $2,000,000. N. A. Armstrong, 19 Melinda St., archt. CD 12/28/49.

Que., Magog—SCHOOL—B.A. 3/31—Lawson & Betts, archts., 660 W. Ste. Catherine St., Montreal, 2 story, bsmnt., 89x157 ft. and 62x167 ft., rein.-con., structural steel, brick school for Protestant School Bd., P. O. Box 459, Magog, Que. $500,000. CD 4/1/49.

CONTRACTS—HEAVY CONSTRUCTION

▲ **Gilpin-Nash Ltd.**, 2265 W. 41 Ave., Vancouver, B. C. Low Bidder, $5,769,216. General contract concrete gravity type and 640 ft. long at crest and 325 ft. high, dam for WW supply, straight spillway section is specified***Vancouver Engineering Works, Ltd., 519 W. 6 St., Vancouver, B. C., $153,902, slide gates and hydraulic hoist***B. C. Cement Co. Ltd., 500 Fort St., Victoria, B. C., $736,000, portland cement required for work***Vancouver Iron Works Ltd., 1155 W 6 St., Vancouver, B. C., $285,886, drum gate and embedded anchorage, all for proposed new Capilano Water Supply dam on Capilano River, North Vancouver, VANCOUVER, B. C. Greater Vancouver Water Dist., 500 Beatty St., Vancouver, B. C. Bids Mar. 8. CD 2/26.

Dominion Bridge Co. Ltd., 2450 Boundary Rd., Vancouver, B. C. Contract Awarded, $506,455, superstructure, steel trestle on concrete pedestals 900 ft. long, 155 ft. high, Ahbau Creek, BRITISH COLUMBIA. Pacific Great Eastern Ry., Pender St. at Abbott St., Vancouver, B. C.

James Robertson Co., Ltd., 946 William St., Montreal, Que. Contract Awarded, $600,000, c.i. water pipe, FREDERICTON, N. B. Municipality, Fredericton, N. B. CD 11/29.

▲ **H. J. O'Connell Ltd.**, Canada Cement Bldg., Montreal, Que. Contract Awarded, Approx. $600,000, radar screen at location "MH"***A. F. Byers Constr. Co. Ltd., 5675 Western Ave., Montreal, Que. Approx. $600,000, radar screen at location "H", both Quebec Region*** Belmont Constr. Co. Ltd., 4781 St. Catherines St. W., Montreal, Que., Approx. $1,098,000, radar screen and about 65 housing units, Senneterre Area, locations undisclosed, QUEBEC. Defence Constr. Ltd., 1247 Guy St., Montreal, Que. Grand total approx. $2,298,000.

CONTRACTS—BUILDINGS

Glacier Lumber Co. Ltd., Nelson, B. C. Owner Builds. $500,000 SAWMILL, NELSON, B. C. Awarded Mar. 1.

Bennett & White Constr. Co. Ltd., 660 Howe St., Vancouver, B. C. Contract Awarded, $936,746, three 2 story 100-bed rein.-con. HOSPITAL UNITS at Mental Hospital, NEW WESTMINSTER, B. C. Province of B. C., Parliament Bldgs., Victoria, B. C. Clive Campbell, Parliament Bldg., Victoria, archt. Awarded Feb. 28.

Joseph Wolfond, 98 Macdonnell St., Guelph, Ont. Contract Awarded, $500,000, 1 and part 2 story, 150 ft. wide, 400 ft. deep steel frame brick, block PLANT GUELPH, ONT., Fiberglass Canada Ltd., First St., Oshawa, Ont., Allward & Gouinlock, 57 Bloor S. W., Toronto, Ont., archts. CD 3/2.

▲ **Foundation Co. of Ontario Ltd.**, 1220 Bay St., Toronto, Ont. Contract Awarded, Approx. $2,500,000, major PLANT extens. for magnesium castings for jet aircraft engines, HALEY STATION, ONT., Dominion Magnesium Ltd., 320 Bay St., Toronto, Ont. Awarded Mar. 7, John Mitchell, 217 Bay St., Toronto, Ont., engr. CD 3/12.

Richard & B. A. Ryan Ltd., 78 Logan Ave., Toronto, Ont. Contract Awarded, $818,000, 4 brick SCHOOLS, TORONTO, ONT. Toronto & Suburban Separate School Bd., 477 Jarvis St., Toronto, Ont. Bids Feb. 12, awarded Mar. 5. CD 2/7.

J. P. Morin Reg'd., 528 Notre Dame St., Cape de la Madeleine, Que. Contract Awarded, $603,000, CHURCH, CAPE DE LA MADELEINE, QUE. Roman Catholic Parish of Cape de la Madeleine, Cape de la Madeleine, Que. Bids Mar. 1. CD 3/12, under LB.

▲ **W. Letourneau**, 3194 E. Beaubien St., Montreal, Que. Owner Builds, $2,000,000, 65 DWELLING UNITS, 19 Ave., MONTERAL, QUE.

▲ **Deschamps & Belanger Ltd.**, 680 Sherbrooke St. W., Montreal, Que. Contract Awarded, Approx. $1,600,000, 2 story M-shaped 420x450 ft., four connecting wings, rein.-con. frame, block brick, normal SCHOOL, at Montee Tiffin, ST. LAMBERT, QUE. Rev. Soeurs des Sts. Mous de Jesus et de Marie, 1240 Mt. Royal Blvd., Montreal, Que. F. Racicot, St. Roch-Sur-Richelieu, Que., archt. CD 2/20/50, under Commercial Buildings.

LATIN AMERICA

BIDS ASKED—HEAVY CONSTRUCTION

Mexico, Jojutla—Sria. de R. H., Paseo de la Reforma, 69, Mexico City, receiving bids March 30, WW. Plans deposit $2.31.

FOREIGN

BIDS ASKED HEAVY CONSTRUCTION

Australia, North Queensland—Dpt. of the Co-Ordinator General of Pub. Wks., Box 185C, G.P.O., Brisbane, Queensland, Australia, receiving bids July 2, pressure tunnel and surge tank for Tully Falls Hydro-electric Proj., Spec. No. TF/6, mfg., supply, delivery and erection of (a) steel pipe line (No. 1) and associated work and alternatively (b) penstock system complete, comprising pipe lines Nos. 1 and 2 and associated works for the Tully Falls Hydro-Electric Proj. Plans deposit $2.24 each.

Australia—At office H. F. Archer, secy., Snowy Mountains Hydro-Electric Auth., 85 O'Riordan St., Alexandria, New South Wales, receiving bids May 21, design and construction Guthega Hydro-Electric Proj., in Snowy Mountains Area. Plans deposit £A. 1,000. Extended date. CD 1/31.

OFFICIAL PROPOSALS

Bids: April 24, 1951

PHA-Aided Housing Project Mass. 16-1

Chelsea Housing Authority

The Chelsea Housing Authority will receive sealed bids for the construction of PHA-Aided Housing Project Mass. 16-1, located in the City of Chelsea, Massachusetts until 8 P.M. o'clock o'clock (Eastern Standard Time), April 24, 1951 at the office of the Chelsea Housing Authority, Room 311, City Hall, Chelsea, Massachusetts, at which time and place, all bids will be publicly opened and read aloud.

The successful bidder will be required to furnish a Performance and payment Bond, as set forth in the Specifications.

Attention is called to the fact that not less than the minimum salaries and wage rates set forth in a schedule contained in the Specification must be paid on this project.

Attention is also called to the requirements relating to Workmen's Compensation and conditions of employment.

Contract Documents, including Drawings and Specifications, will be on file and will be available after twelve o'clock noon March 23, 1951 at the office of the Chelsea Housing Authority, Room 311, City Hall, Chelsea Massachusetts. Copies of the documents may be obtained by depositing Fifty Dollars ($50.00) in the form of a certified check, made payable to the Chelsea Housing Authority for each set of documents so obtained. The amount of the deposit will be refunded to each person who returns all documents in good condition within ten (10) days after opening of all bids.

Sub-bids will be taken on the following portions of the work:

1. Heating
2. Plumbing
3. Electric

Bids of sub-bidders designated above shall be in the possession of the Chelsea Housing Authority and delivered or mailed to the General Contractor or Contractors to whom such sub-bids are to be submitted by twelve o'clock noon at least two (2) days before the date of opening of General Contract Proposals. The Chelsea Housing Authority reserves the right to reject any or all bids of the general bidders and to waive any informalities in bidding, if it be in the public interest so to do. The Chelsea Housing Authority also reserves the right to reject all bids of the sub-bidders on any item or items and to waive any informalities in the bidding, if such reject or waiver be in conformance with Section 44C of Chapter 149 of the General Laws.

Cash, certified check on, or a certificate of deposit issued by, a responsible bank or trust company, payable to the Chelsea Housing Authority, or a satisfactory bid bond executed by the bidder and a surety company, shall be submitted with each bid as follows:

1. By General Bidders, in the amount of 5% of the amount of the General Bid, but not in excess of Fifty Thousand Dollars ($50,000.00).
2. By Sub-Bidders listed under Item 2 of the General Contractor's Bid Form in an amount not less than 5% of the Sub-Bidders bid price.

No bid of a General Bidder shall be withdrawn prior to thirty (30) days from the date of approval by the Public Housing Administration of the award of the Contract, provided, however, that any bid of a General Bidder may be withdrawn if the Contract shall not have been awarded by forty-five (45) calender days from the date of opening of such bids.

No bid of a sub-bidder shall be withdrawn prior to thirty (30) days from the date of approval by the Public Administration of the award of the Contract to the General Contractor, provided, however, that any such bid may be withdrawn if a subcontract shall not have been let by sixty (60) days after the date of opening and recording of bids.

CHELSEA HOUSING AUTHORITY
George A. Innes
Chairman

(Continued on page 61)

OFFICIAL PROPOSALS

APPEAR HERE EACH THURSDAY. PROPOSAL ADVERTISEMENTS ACCEPTED UP TO 3 P.M. THURSDAY FOR THE ISSUE DATED THE FOLLOWING THURSDAY.

(Continued from page 60)

Bids: April 2, 1951

Sewage Treatment Plant and Intercepting Sewer Project

CITY OF LONG BEACH, N. Y.

1. Sealed proposals for the construction of the herein described Contract for Intercepting Sewers in the City of Long Beach, N. Y., will be received by the City Manager until 2:00 o'clock P. M., April 2, 1951, in his office at City Hall, Long Beach, N. Y., and there publicly opened and read.

2. The work will consist of providing all labor, materials, equipment and incidentals required for the construction of the following:

CONTRACT "A"—INTERCEPTING SEWERS

(Approximately: 100 L.F.-12" R.C. Pipe; 850 L.F.-18" R.C. Pipe; 800 L.F.-24" R.C. Pipe; 3100 L.F.-30" R.C. Pipe; 1700 L.F.-33" R.C. Pipe; 1150 L.F.-42" R.C. Pipe; 250 L.F.-48" R.C. Pipe and appurtenant structures)

3. Plans, Specifications, bidding and contract documents may be examined in the office of the Consulting Engineers, Alexander Potter Associates, 50 Church Street, New York 7, N. Y., and at the Office of the City Engineer at City Hall, Long Beach, N. Y., and obtained from the latter upon the following deposits per set:—

CONTRACT A—Intercepting Sewers $20.00

Full refund will be made to actual bidders for return of one (1) set in good condition, within two weeks after closing date for receipt of bids; refund for return of all other sets, in good condition, within the same period, will be fifty percent (50%) of the deposit.

4. All proposals must be on the form contained in the specifications as furnished by the City.

5. All bids must be accompanied by a Certified Check or Acceptable Bidder's Bond in the amount of Ten (10) per cent of the amount of the Bid, made payable to the City Treasurer, City of Long Beach. Said checks will be returned to all, except the three (3) lowest bidders, not later than ten (10) days after opening of bids.

6. The successful bidder will be requested to furnish a Performance Bond conditioned upon the faithful performance of the contract and upon payment of all persons supplying labor and furnishing materials on the construction of the work.

7. No bidder may withdraw his bid within thirty (30) days after closing date for receipt of bids.

8. The City Council reserves the right to reject any or all bids and to waive any informality in the Bid, and to accept that proposal which in its judgment best serves the interests of the City.

CITY OF LONG BEACH, N. Y.
By: Maurice J. Fleishman
City Manager

Dated: March 7, 1951

Bids: April 10, 1951

New Jersey Turnpike Authority

Sealed proposals will be received by the New Jersey Turnpike Authority for:

CONTRACT NO. 47

The work to be done under this Contract involves the installation of the roadway and navigation lighting systems on the Hackensack River Bridge, near Laurel Hill, Hudson County and on the Passaic River Bridge, in the City of Newark, Towns of Kearny and Secaucus, Essex and Hudson Counties, New Jersey, and other incidental work, all in connection with the construction of the New Jersey Turnpike.

The work on the Hackensack River Bridge involves the laying of approximately 1000 feet of underground conduit; construcconcrete splice boxes; the installation of tion of a transformer enclosure and of transformers with incidental equipment; installing 58 roadway lighting units, transverse conduits at the lamp standards, 10 navigation lights and all conduit therefor; the installation of all wires connected therewith; and the fabrication and erection of access ladders for the fender navigation lights.

The work on the Passaic River Bridge involves the laying of approximately 1200 feet of underground conduit, the construction of concrete splice boxes; installing 70 roadway lighting units, transverse conduits at the lamp standards, 10 navigation lights and all conduit therefor; the installation of all wires connected therewith; and the fabrication and erection of access ladders for the fender navigation lights.

Proposals will be received at the office of the New Jersey Turnpike Authority, 65 Prospect Street, Trenton 8, New Jersey until 10:00 o'clock, Eastern Standard Time on the morning of April 10, 1951, and thereafter in the Veteran's Room of the War Memorial Building, Memorial Drive at Willow Street, Trenton, New Jersey, until 11:00 A. M., Eastern Standard Time, on the same date, at which latter time and place said proposals will be publicly opened and read.

The receipt and opening of proposals is subject to proper prequalification of the bidder in accordance with the regulations adopted by the New Jersey Turnpike Authority. Bidders must also submit with their Proposal a revised financial statement and a statement of plan and equipment.

Contract documents may be seen, and may be inspected by prospective bidders during office hours, after March 15, 1951, at the office of the New Jersey Turnpike Authority, 65 Prospect Street, Trenton, New Jersey and at the office of the Consulting Engineers, Howard, Needles, Tammen & Bergendoff, 55 Liberty Stree, New York, New York.

Contract documents will be furnished for $5.00 for each set, upon application to the Authority. The payment will not be refunded and contract documents are not required to be returned.

Proposals must be made upon the standard proposal forms in the manner designated in the Standard Specifications for Construction of the New Jersey Turnpike, and must be enclosed in sealed special addressed envelopes bearing the name and address of the bidder and the number of the contract on the outside, and must be accompanied by a *certified check* drawn to the order of the New Jersey Turnpike Authority *and a proposal bond, each for not less than five (5) per cent of the amount of the proposal*, but not less than $500.00 nor more than $200,000.000 and must be delivered at the place designated above on or before the hour named. Copies of the proposal form to be used for submitting proposals, of the form for the proposal bond, of the form to be used for the financial statement and for the plan and equipment statement to be submitted with the proposal and of the special addressed envelope are furnished in detached form with the contract documents.

The Contract will be awarded or the proposals rejected within fifteen (15) days from the date of opening proposals. The right is reserved to reject any or all proposals.

THE NEW JERSEY TURNPIKE AUTHORITY
Paul L. Troast
Chairman

March 14, 1951

Bids: April 27, 1951

Filtration Plant Extension

Office of City Purchasing Agent
Nashville, Tennessee.

Sealed bids will be received by the Purchasing Agent of the City of Nashville, Tennessee, at the Office of the Purchasing Agent, until 10:00 A.M., Central Standard Time, on Friday, April 27, 1951, for Filtration Plant Extension, including Six (6) Additional Two and a Third Million Gallon Filters, Chlorine Machine In Storage Room, New Clarifier, New Grit Chamber, New Mixing Chambers, Conversion of Existing Settling Basins to Clarifiers, together with all piping, Valves, Auxiliary Equipment and other appurtenances; in accordance with the plans and specifications which are on file in the office of the Director of the Nashville Waterworks Department, Room 201 City Hall, Nashville, Tennessee, and also the office of The Chester Engineers, 210 East Park Way, Pittsburgh 12, Pennsylvania. Immediately after closing time for the receipt of bids they will be publicly opened and read aloud in the office of the Purchasing Agent, City Hall.

The successful bidder will be required to furnish a satisfactory performance bond.

All bids shall be made upon the blank forms of the contract documents. Copies of all contract documents, including Proposal Form, Contract Plans and Specifications and Instructions to Bidders may be obtained at the office of The Chester Engineers by depositing Twenty-Five Dollars ($25.00) for each set of documents so obtained. The entire deposit will be refunded to each actual bidder and Fifteen Dollars ($15.00) will be returned to all others who return plans and specifications in good condition within ten (10) days after opening of bids.

The right is reserved by the City of Nashville, through its Mayor, to reject any and all bids, to waive any informalities in the bids received, and to accept any bid which, in its opinion, may be for the best interest of the City.

A certified check or bank draft, payable to the City of Nashville, or a satisfactory bid bond executed by the bidder and a surety company authorized to transact business in the State of Tennessee, in an amount equal to Five Per Cent (5%) of the bid, shall be submitted with each bid.

No bid may be withdrawn after the scheduled time for the receipt of bids.

CITY OF NASHVILLE, TENNESSEE
E. B. SMITH
Purchasing Agent.

U. S. Government

UNITED STATES DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Invitation No. DS-3344) will be received by the Bureau of Reclamation, Denver, Colorado, until April 12, 1951, and then publicly opened for furnishing three 74,000-horsepower, 163.6-rpm, vertcial-shaft, hydraulic turbines for Folsom Power Plant, Central Valley Project, California. Delivery is desired within 870 days. For particulars, address Bureau of Reclamation, Building 53, Denver Federal Center, Denver, Colorado.

UNITED STATES DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Specifications No. DC-3347) will be received by Bureau of Reclamation, Ephrata, Washington, until April 11, 1951, and then publicly opened for furnishing all materials and performing all work for the construction of earthwork and structures for wasteways RCD, EL 29 B, DE 226, and EL 20, No. 2, of RCD wasteway system, East Low Canal Laterals, Columbia Basin Project, Washington. The work is situated in the vicinity of Moses Lake, Washington. Principal items for 7½ miles of wasteways are approximately: 202,000 cu. yds., excavation; 550 cu. yds., concrete; furnishing and installing 45,000 lbs. reinforcement bars, 760 lin. ft. steel sheet piling, and 100 M. b. m. lumber; and other work. Time allowed for completion will be 200 days. For particulars, address Bureau of Reclamation, Ephrata, Washington; or Building 1-A, Denver Federal Center, Denver, Colorado.

Office of the District Engineer, Corps of Engineers, U. S. Army 1217 U. S. Post Office and Custom House, St. Paul 1, Minnesota.—Sealed bids, in duplicate, for furnishing all labor and materials and performing all work required for Channel Improvement on Clearwater River, Minnesota, Stage No. 3, will be received in this office until 2:00 P.M., C.S.T., March 28, 1951, and then publicly opened. Further information upon application.

Office of the District Engineer, Corps of Engineers, U. S. Army, 1217 U. S. Post Office and Custom House, St. Paul 1, Minnesota.—Sealed bids, in duplicate, for furnishing all labor and materials and performing all work required for New Bridge Construction and Pier Encasement on Existing Bridges, Clearwater River, Minnesota, will be received in this office until 2:00 P.M., C.S.T., 21 March 1951, and then publicly opened. Further information upon application.

(Continued on page 62)

U. S. Government
(Continued from page 61)

UNITED STATES DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Specifications No. 14C-5343) will be received by Bureau of Reclamation, Denver, Colorado, until April 10, 1951, and then publicly opened for furnishing labor and materials and performing all work for the construction of Willow Creek Dam, Colorado-Big Thompson Project, Colorado. The work is situated approximately 4.5 miles north of Granby, Colorado. Principal items are approximately: 547,000 cu. yds. of excavation; 271,000 cu. yds. of fill in embankments; 4,000 cu. yds. of concrete; furnishing and handling 8,125 bbls. of cement; furnishing and placing 420,000 lbs. of reinforcement; constructing 2.6 miles of 13.8-kv. transmission lines; constructing 2.7 miles of access road; and other work. Time allowed for completion will be 600 days. For particulars, address Bureau of Reclamation, Building 1-A, Denver Federal Center, Denver, Colorado.

Bids: March 27, 1951 (353)

Electrical Equipment

CONTRACT 426

SEALED BIDS will be received by the Board of Water Supply, at its offices, thirteenth floor, 120 Wall Street, New York City, until 11:00 A.M., Eastern Standard Time, on Tuesday, March 27, 1951, for Contract 426, for furnishing, installing and testing electrical equipment and conductors and for installing and testing substation equipment furnished by The City and for testing electrical equipment installed under previous contracts, for the sewage treatment plant and for the North Street and Newtown pumping stations which are being built under Contract 381 by The City of New York in the City of Port Jervis, Orange county, New York, all as set forth in the specifications.

No bid will be received and deposited unless accompanied by a certified check upon a National or State bank, drawn and made payable to the order of the Comptroller of the City of New York, in the amount of two thousand dollars ($2000.00), for the proper execution of the contract.

At the above place and time the bids will be publicly opened and read. Pamphlets containing information for bidders, forms of bid and contract, specifications, contract drawings, requirements as to surety, etc., can be obtained at the office of the Chief Engineer, Room 1311, at the above address, upon application in person or by mail, by depositing the sum of five dollars ($5.00) in cash or its equivalent for each pamphlet. Within 30 days following the award of contract or rejection of bids, the full amount of such deposit will be refunded for each pamphlet submitted as a bid and a refund of four dollars ($4.00) will be made for each other pamphlet returned in acceptable condition. Arrangements will be made whereby prospective bidders desiring blueprints of the contract drawings for their own use may secure same, the cost thereof to be paid by them. For further particulars, apply at the office of the Chief Engineer at the above address.

IRVING V. A. HUIE, President, RUFUS B. McGAHEN, JAMES J. MORAN, Commissioners, Board of Water Supply; RICHARD H. BURKE, Secretary.

Bids: April 3, 1951

Collecting Sewer System

Sealed bids will be received by the Commission of Jefferson County, 210 Court House, Birmingham 3, Alabama, at its office until 10:00 A.M., C.S.T., Tuesday, April 3, 1951, and at that time publicly opened and read, for furnishing the pipe and for constructing a collecting sewer system consisting of approximately 16.9 miles of sewers from 8" to 12" in diameter, and which is subdivided into the following contracts.

CONTRACT A—The work under this contract is divided into four sections. Bidders may submit proposals on any or all sections of the work. The description of the extent of the work under each section is shown below.

Contract A-1 Comprising the lower section of Village Creek Collector, extending from sta. 39+30 on the survey line to sta. 184+04.5 just west of St. Marks Village, and consisting of:
- 5,355 ft. 10'-0" sewer
- 8,995 ft. 3'-0" sewer
- Village Creek siphon of 260 ft. of 5'-0" and of 7'-6" sewer
- 100 ft. 5'-0" siphon bypass
- Connection to Valley Creek Diversion line
- 2 transition sections

OFFICIAL PROPOSALS

- 3 intercepting connections to present sewers including approximately 425 ft. of 18" sewer pipe and 15 ft. of 8" pipe
- All miscellaneous construction

Contract A-2 Comprising the middle section of Village Creek Collector, extending from sta. 184+04.5 to sta. 405+06 near the intersection of Tombigbee St. and 40th St. North, and consisting of:
- 6,930 ft. 5'-3" sewer
- 7,695 ft. 5'-3" sewer
- 7,485 ft. 4'-3" sewer
- 3,145 ft. 4'-3" sewer
- 200 ft. 5'-3" bypass sewer
- 4 transition sections
- 27 intercepting connections to present sewers including approximately 150 ft. of 18" sewer pipe, 335 ft. of 12" pipe, 50 ft. of 10" and 2,320 ft. of 8" pipe
- All miscellaneous construction

Contract A-3 Comprising the upper section of Village Creek Collector from sta. 405+06 to sta. 778+32, near Five Mile Creek just north of Meadowbrook Estates subdivision, and consisting of:
- 2,845 ft. 4'-3" sewer
- 1,020 ft. 4'-3" sewer
- 8,370 ft. 4'-0" sewer
- 1,485 ft. 3'-6" sewer
- 5,750 ft. 3'-0" sewer
- 4,000 ft. 2'-9" sewer
- 7,700 ft. 2'-6" sewer
- 2,700 ft. 2'-3" sewer
- 1,900 ft. 1'-6" sewer
- 1,020 ft. 12" sewer
- 7 transition sections
- 17 intercepting connections to present sewers including approximately 85 ft. of 18" sewer pipe, 420 ft. of 12" pipe, 715 ft. of 10" pipe and 1300 ft. of 8" pipe
- All miscellaneous construction

Contract A-4 Comprising the Valley Creek division line, extending south along the line of Border Street, extended, from a connection with the Village Creek Collector just east of Roberts Field to a connection with the present Valley Creek Collector on the property of the A.C.L. R.R. one block east of Fayette St., and consisting of:

7,561 ft. 5'-6" sewer, mainly in tunnel

All miscellaneous construction

CONTRACT B Furnishing precast reinforced concrete pipe or concrete pressure (centrifugal) pipe for Sections 1, 2 and 3 of Contract A.

The approximate quantities of pipe required for the three Sections of Contract A are as follows: 5,355 lin. ft. 10'-0"; 8,995 lin. ft. 8'-0"; 260 lin. ft. 7'-6"; 7,130 lin. ft. 5'-9"; 7,695 lin. ft. 5'-3"; 7,585 lin. ft. 5'-0"; 3,145 lin. ft. 4'-9"; 2,845 lin. ft. 4'-6"; 1,020 lin. ft. 4'-3"; 8,370 lin. ft. 4'-0"; 1,485 lin. ft. 3'-6"; 5,750 lin. ft. 3'-0"; 4,000 lin. ft. 2'-9"; 7,700 lin. ft. 2'-6"; 2,700 lin. ft. 2'-3".

Plans and Specifications are on file and may be examined at the office of Claude J. Rogers, County Engineer, Room 206, Jefferson County Court House, Birmingham 3, Alabama, J. W. Goodwin Engineering Co., Inc., "Management Engineers," 726 South 29th Street, Birmingham 5, Alabama, and at the office of Poglaze & Basenberg, 812 South 27th Street, Birmingham 5, Alabama; and may be obtained from the office of Poglaze & Basenberg upon deposit of $35.00 per set. The full amount of deposit will be refunded to persons or firms submitting a bid, and all other deposits will be returned (less $20.00 which is actual cost of documents) upon return of all documents in good condition within five days after the date of opening of bids.

Only proposals submitted by bidders duly licensed as required by Act. No. 237, General Laws of Alabama, approved September 2, 1935, will be considered. The attention of all bidders is called to the provisions of State Law governing "General Contractors" as set forth in Chapter 4 of Title 46 of the 1940 Code of Alabama (Sections 65 to 82, both inclusive.)

All bids must be accompanied by cash, bid bond, or a check certified by a responsible bank, in an amount of not less than five per cent (5%) of the aggregate of the proposal; and such deposits shall be attached to the proposals. The payee of such check or the obligee of such bond shall be the Commission of Jefferson County. The maximum deposit by any one bidder need not exceed fifty thousand dollars ($50,000.00). The deposit shall be forfeited in case the Contractor fails to enter into Contract with good and sufficient bonds within 10 days after the Contract has been awarded to him.

The successful bidder will be required to furnish through an authorized agent in the State of Alabama a Performance Bond satisfactory to the Commission in the full amount of the Contract, and a labor and Materials Bond in a sum equal to but not less than one-half (½) of the Contract price.

No bid may be withdrawn after the time for opening bids has passed. The County reserves the right to hold the bids for a period of sixty days after the date of receiving the bids.

The County Commission reserves the right to reject any or all bids or waive any informality in any bid, and to accept any bids considered advantageous to the Commission.

COMMISSION OF JEFFERSON COUNTY
By W. D. Kelchick
President
ATTEST: T. S. Lucius
Chief Clerk
POLGLAZE & BASENBERG, Engineers
812 South 27th Street
Birmingham 5, Alabama

Bids: April 16, 1951

Water Supply System

STAR LAKE, NEW YORK

Sealed proposals for furnishing all labor, equipment and materials for the construction and installation of a water supply system and appurtenances for the Star Lake Water District, Star Lake, N. Y., will be received by the Town Board of the Town of Pine at the Fire Station, Star Lake, N. Y., until 2:00 P.M., Eastern Standard Time on Monday, April 16, 1951, at which time they will be publicly opened and read aloud.

The work will be divided into the following contracts:

1. Distribution system.
2. Pump house improvements, pump sump and lake intake.
3. Reservoir foundation.

The information for Bidders, Form of Bid, Form of Contract, Performance Bond and Specifications and Plans may be examined at the office of the Town Clerk, Star Lake, N. Y., and copies thereof may be obtained from William T. Field Associates, Inc., Consulting Engineers, Watertown, N. Y., upon the deposit of Ten Dollars ($10.00) for each set, which sum will be returned to all bidders and intending bidders, upon their return in good condition, within thirty days after the opening bids.

The Town Board reserves the right to waive any information in or to reject any or all bids or to accept any bid that they deem is in the best interests of the District.

Each bidder must deposit with his bid, security in the amount of not less than five per centum (5%) of the bid in the form and subject to the conditions provided for in the Information for Bidders.

The successful bidders will be required to furnish a performance bond in such form and having as surety thereon such surety company or companies as are approved by the Town Board, in the amount of not less than 100% of the total amount of the accepted bid.

Attention of bidders is particularly called to the requirements as to conditions of employment to be observed and minimum wage rates to be paid under these contracts.

STAR LAKE WATER DISTRICT
William J. Griffin, Jr.
Supervisor, Town of Pine,
St. Lawrence County, N. Y.

Dated: March 15, 1951
THE WILLIAM T. FIELD ASSOCIATES, INC.
CONSULTING ENGINEERS
Watertown, N. Y.

Bids: March 29, 1951

Passenger Terminal Borings

THE PORT OF NEW YORK AUTHORITY
NEWARK AIRPORT
CONTRACT NA-170.037

Sealed proposals for borings for the Passenger Terminal at Newark Airport will be received at the office of the Chief Engineer of The Port of New York Authority, Room 1100, 111 8th Ave., N. Y. 11, until 11:30 A.M., Thursday, March 29, 1951 at which time and place said proposals will be opened and read.

Contract documents may be seen at the office of the Chief Engineer and copies will be furnished upon deposit of $10 per set. The deposit will be remitted if the documents are returned in good condition, not later than 30 days after the opening of proposals.

THE PORT OF NEW YORK AUTHORITY
Howard S. Cullman, Chairman

New York, March 22, 1951

(Continued on page 63)

OFFICIAL PROPOSALS
(Continued from page 62)

Bids: April 3, 1951

Collecting Sewer System

Sealed bids will be received by the Commission of Jefferson County, Room 206 Courthouse, Birmingham 3, Alabama, at its office until 10:00 A.M., C.S.T., Tuesday, April 3, 1951, and at that time publicly opened and read, for furnishing the pipe and for constructing collecting sewer systems consisting of approximately 4.3 miles of sewers from 8" to 36" in diameter. The work is subdivided into the following contracts.

CONTRACT A—The work under this contract is for the furnishing of materials and construction of the Bessemer Sanitary Sewer Outfall, consisting principally of the following:
4941 feet 36" V.C. or Concrete Sewer
1798 feet 36" C.I. Sewer
300 feet Steel Truss & Piers
8 Manholes
All miscellaneous construction

CONTRACT B—Furnishing only the items of sewer pipe listed under contract A.

CONTRACT C—The work under this contract is for the furnishing of materials and construction of the Homewood Griffin Creek Sanitary Sewer Outfall, consisting principally of the following:
3318 feet 12" V.C. or Conc. Sewer
2925 feet 18" V.C. or Conc. Sewer
3714 feet 24" V.C. or Conc. Sewer
4497 feet 27" V.C. or Conc. Sewer
597 feet 30" V.C. or Conc. Sewer
600 feet 12" C.I. Sewer
132 feet 18" C. I. Sewer
414 feet 24" C.I. Sewer
70 Manholes
All miscellaneous construction.

CONTRACT D—Furnishing only the items of Sewer pipe listed under contract D.

Plans, specifications and contract documents are open to public inspection at the office of C. J. Rogers, County Engineer, Room 206, Courthouse, and at the offices of J. W. Goodwin Engineering Co., Inc., 726 South 29th Street, Birmingham, Alabama, or may be obtained from J. W. Goodwin Engineering Co., Inc., upon deposit of $25.00. The full amount of deposit for one set of documents will be refunded (with deductions not exceeding the actual cost of the documents) upon return of all documents in good condition within three (3) days after the date of opening of bids.

A Performance Bond will be required of the successful bidder in the amount of 100% of the contract price. A Labor and Material Bond will be required of the successful bidder in the amount of 50% of the contract price.

Attention of Bidders is called to the License required by Act. No. 297 of General Laws of the Legislature of Alabama, approved September 2, 1935, entitled "An Act to Regulate the Licensing of General Contractors", and that it will be necessary for all persons submitting bids for work involving Ten Thousand Dollars or more to show satisfactory evidence of license as a general contractor. No Plans, specifications or proposal forms herein will be issued to other than licensed general contractors or their authorized agents.

Bids must be accompanied by a certified check or Bidder's Bond in an amount not less than five (5) percent of the base bid.

No bid may be withdrawn after the scheduled closing time for the receipt of bids for a period of sixty days.

The Owner reserves the right to reject any and all bids, and to waive informalities.

JEFFERSON COUNTY COMMISSION
By: W. D. Kendrick, President
Attest: T. S. Lucius, Chief Clerk
J. W. GOODWIN ENGINEERING CO., INC.
726 South 29th Street
Birmingham, Alabama

U. S. Government

Office of the District Engineer, Corps of Engineers, U. S. Army, 1217 U. S. Post Office and Custom House, St. Paul 1, Minnesota.—Sealed bids, in duplicate, for furnishing all labor and materials and performing all work required for construction of Orwell Dam on Otter Tail River, Minnesota, will be received in this office until 2:00 P.M., C.S.T., 27 March 1951, and then publicly opened. Further information upon application.

READ THE OFFICIAL PROPOSAL COLUMNS OF
ENGINEERING NEWS-RECORD
THIS WEEK AND EVERY WEEK

SEARCHLIGHT SECTION

(Classified Advertising)

EMPLOYMENT: BUSINESS: "OPPORTUNITIES" :EQUIPMENT :USED OR RESALE

ENGINEERS
ELECTRICAL - MECHANICAL - STRUCTURAL

Openings in Ohio and New York offices offering long term employment with good salary for qualified Group Leaders, Designers and Draftsmen experienced in one or more of the following phases of industrial plant design:

Electrical Power, lighting layouts and electrical controls.

Mechanical Plant layout, process piping, conveyors, heating and ventilation, boiler houses, process equipment layout, refrigeration, plumbing, tanks and vessels, packaging equipment, special machinery and equipment.

Structural Structural steel and reinforced concrete.

Please submit complete resume stating experience, education, salary required and availability date.

THE H. K. FERGUSON COMPANY
Engineers and Builders

The Ferguson Bldg. 1783 E. 11th St. Cleveland 14, Ohio
19 Rector Street New York 6, N. Y.

PARTY CHIEFS—SURVEYORS

Excellent opportunities for immediate permanent employment with a progressive organization. Experience essential in field surveys for highway location and design, water and sewage facilities, airports, dams, etc.

Desirable working conditions at salary commensurate with ability. Write for application blank. All replies will be held confidential and will be promptly acknowledged.

CAPITOL ENGINEERING CORPORATION
DILLSBURG, YORK COUNTY PENNSYLVANIA

ESTIMATOR

Permanent position for a man approximately 35 years old with large Pittsburgh firm of Engineers and Constructors. Must be thoroughly experienced in Commercial, Industrial and Institutional building construction. Salary limited only by applicant's ability and experience. Engineering background preferred—not essential. Submit information stating experience, education, age and availability. Replies confidential.

P-8870, Engineering News-Record
330 W. 42 St., New York 18, N. Y.

WANTED

General Contractors' Chief Engineer—Estimator by long-established well-known firm doing a large volume of Heavy Engineering and Industrial Construction, Pittsburgh area. Desired qualifications are: Graduate engineer approximately 40-45, who is experienced in estimating prices as well as quantities, including ability to select best methods of construction, bridges, pile driving and allied work. Must be able to handle the usual design problems of such contracting. Reply must give outline of experience in duties as outlined above, preferably with photograph and salary data.

P-9185, Engineering News-Record
330 W. 42 St., New York 18, N. Y.

ENGINEERS

Process (Chemical) Engineers
Construction Engineers
Project (Mechanical) Engineers

To Work On
Petroleum, Petro-Chemical and Chemical Projects

Write in complete detail, giving positions held, references, education, salary expected. Personal interview can be arranged.

Address Personnel Department

E. B. BADGER & SONS COMPANY
75 Pitts St., Boston, Mass.

ENGINEERING

We are increasing our engineering organization for the design of Oil Refinery, Blast Furnace, Open Hearth, Steel Mill, Power Plants and have openings for men who are interested in permanent employment and advancement.

Such men should be qualified as draftsmen, designers, checkers or higher engineering skills on design of piping, instrumentation, pressure vessels, structural steel, concrete, platework, heavy mechanical equipment and electrical.

If you are interested and have engineering design experience on this class of work, write to us furnishing full record of experience and qualifications.

This work is in our Cleveland office, and is on a 5-day, 45-hour week basis, with time and one-half over 40 hrs; also, vacation and holiday pay. Steady employment and a good opportunity with a good organization.

ARTHUR G. McKEE & CO.
2300 Chester Ave.
CLEVELAND 1, OHIO

STRUCTURAL DESIGNERS WANTED

by large Industrial and Building Products manufacturer. Experience in concrete and steel design for industrial plants, machine pits, foundations, etc. Age 26 to 55. College degree or equivalent specializing in Structural Engineering. Send resume and salary requirements. All replies kept confidential.

P-9242, Engineering News-Record
330 W. 42 St., New York 18, N. Y.

SERVICE MANAGER
EXPERIENCED
FOR BRANCH OF CATERPILLAR DEALER. OUR EMPLOYEES KNOW OF THIS AD.

P-8981, Engineering News-Record
330 W. 42 St., New York 18, N. Y.

STEEL COMPANY

located Northern New Jersey has opening in Concrete Reinforcing Dept. for experienced man to assist department manager; must be familiar with pertinent office and sales procedure and be able to read engineering and architectural drawings. Include in resume, salary and draft status.

P-9221, Engineering News-Record
330 W. 42 St., New York 18, N. Y.

DESIGNERS AND DRAFTSMEN

Electrical, Mechanical, Structural with concrete structural or gas piping experience. Permanent employment, good working conditions, vacations, hospitalization, retirement plan, other benefits. Will pay transportation to location. Address reply to

Texas Gas Transmission Corporation
Box 577, Owensboro, Kentucky

Estimators

In expanding our whole organization, several openings have been created for estimators experienced in taking-off of quantities and pricing for central station steam-electric power plants.

Please outline qualifications and experience in first letter. Personal interviews will be arranged

gibbs & hill, inc.
Pennsylvania Station
New York 1, N. Y.

DESIGNERS, DRAFTSMEN, ELECTRICAL - MECHANICAL - STRUCTURAL. JOB LOCATED IN MIDDLE WEST. EXCELLENT WORKING CONDITIONS. GOOD SALARY. OLD ESTABLISHED COMPANY.

P-9011, Engineering News-Record
520 N. Michigan Ave., Chicago 11, Ill.

REPLIES (Box No.): Address to office nearest you
NEW YORK: 330 W. 42nd St. (18)
CHICAGO: 520 N. Michigan Ave. (11)
SAN FRANCISCO: 68 Post St. (4)

CIVIL SERVICE

WANTED, ENGINEER, Structural or Mechanical to advise in preparation of plans, review drawings, supervise and inspect construction, etc. State experience, age and salary required. Address the Commissioner, Tennessee Department of Public Health, 426-6th Avenue North, Nashville, Tennessee.

CIVIL ENGINEERS Wanted—Senior Civil and Assistant Civil Engineers wanted with experience in Municipal and Public Works Engineering—Civil Service—apply or send record of education and experience to City Clerk, City Hall, Royal Oak, Michigan.

SUPERINTENDENT OF Public Works. Northeastern semi-rural community, population 3,500, owning electric distribution, water supply, central heating, sewers and disposal works, needs superintendent and engineer for operations, maintenance and minor construction including streets and public buildings. Wholly non-political. Qualified office and field assistants available. Civil service protection. Must be familiar with sound accounting, records, rates, etc. CS-9235, Engineering News-Record.

CIVIL ENGINEER—must be registered. Municipal experience desirable. Starting salary $4,000 to $5,500, depending on experience. State age, education, experience, references and salary expected. Personnel Supervisor, 305 Municipal Building, Dayton, Ohio.

SALES ENGINEER
ENGINEERING and CONSTRUCTION

Large firm of Engineers and Constructors has opening in Pittsburgh for qualified Sales Engineer and Executive with contacts and recent experience in selling engineering and construction services. Submit complete information stating experience, education, personal contacts, references, date available and salary requirements. All replies will be treated confidentially.

SW-8869, Engineering News-Record
330 W. 42 St., New York 18, N. Y.

ELECTRICAL ENGR-ESTIMATOR

For large electrical contractor. Heavy power and industrial experience essential. Salary commensurate with ability. Write:

Broadway Maintenance Corp.
22-09 Bridge Plaza North,
Long Island City 1, New York
Att: Electrical Construction Div.

POSITIONS VACANT

WANTED: STRUCTURAL Engineers, Mechanical Engineers and Industrial Architects; some defense work. Seelye, Stevenson & Value, 101 Park Avenue, New York, N. Y.

WANTED: ASSISTANT Crushed Rock Superintendent. Only experienced personnel need apply. Salary open. L. G. Everist, Inc., Sioux Falls, South Dakota.

PROJECT ENGINEER and Structure Engineer wanted by reliable contracting firm on canal work in California and Arizona. Prefer engineering graduate with two or more years on construction. P-9107, Engineering News-Record.

BRIDGE DESIGNERS and Structural Draftsmen. Openings for both experienced men and recent graduates. Applicants should furnish complete information. Frank D. McEnteer, Consulting Engineer, Clarksburg, W. Va.

GENERAL SUPERINTENDENT for work in Eastern part of the Country, must be capable of supervising all phases of Highway construction. Reply stating age, experience and references. P-9052, Engineering News-Record.

WANTED: STRUCTURAL Engineers for pulp and paper mill design including mill layout and structural steel and reinforced concrete design. In first letter give complete engineering experience, age, education, etc. Address Construction Engineer, P. O. Box 1844, Savannah, Ga.

ENGINEERS WANTED in consulting office, qualified for design on water and sewage treatment projects. Location, Ohio. P-9141 Engineering News-Record.

WANTED: CIVIL Engineer having thorough knowledge and experience in development construction, maintenance and management of Public Housing Projects. Must be familiar with preparation of preliminary plans and program submittals and to act as liaison between Regional Public Housing Administration, Local Housing Authority, Architects and Contractors. New development program expected to last several years. Permanent position in the maintenance of entire local program. Southeastern State. Submit resume of qualifications and salary wanted with application. ALSO: A construction Engineer as Clerk of the Works or Chief Inspector for above new development program. Submit resume of qualifications and salary wanted with application. Address P-9178, Engineering News-Record.

CONSTRUCTION, EXECUTIVE Engineer: Capable of office Management, estimating, buying sub-contracts, materials, solicitation of new business and field management. Unusual opportunity for aggressive person with proper qualifications. Give full experience, salary expected, age and availability in first reply. Joseph Skilken & Company, 44 E. Broad Street, Columbus 15, Ohio.

ENGINEER, CIVIL. Experienced in construction work drafting, quantity estimating, surveying and field supervision. First class man only. Write P. O. Box 1074, Roanoke, Virginia.

CONSTRUCTION DEPARTMENT Manager—Prominent industrial insulation manufacturer requires man at Indianapolis, Indiana with knowledge of contractor business, involving selling, estimating, handling labor. Experience in industrial insulation, plumbing and heating industry or general contracting preferable but not absolutely essential. Reply fully stating qualifications, age and salary expected. P-9209, Engineering News-Record.

POSITIONS VACANT

ENGINEER, MECHANICAL, experienced in detail drafting, etc. for industrial piping installations. First class man only. Write P. O. Box 1074, Roanoke, Virginia.

WANTED: CIVIL Engineer with experience in general municipal engineering work, land surveying, with office experience. Located in metropolitan area. Immediate employment. Reply: P-9233, Engineering News-Record.

POSITION OPEN for engineer, construction man familiar with dock and pier building and pile driving who lives in Newark—Elizabeth, N. J. district. Write P-9221, Engineering News-Record.

ENGINEER-FAMILIAR with can making machinery as well as machine shop practice and techniques. To take charge of small Engineering Department with small aggressive can manufacturer located in mid-west. Degree preferred, but not necessary. State qualifications and salary. Excellent opportunity for rapid advancement. Age, 25-35. P-9240, Engineering News-Record.

FIRE PROTECTION Engineering. Civil, Electrical, Mechanical or Chemical Engineering graduates for inspection work. No experience necessary. Newly formed company—excellent opportunity. Residents of New England preferred. Write P-9225, Engineering News-Record.

PRODUCTION CONTROL Man-Schedule production and control supply of raw materials for small can manufacturing plant. Excellent opportunity for advancement if willing and able to accept responsibility. Age, 25-30. P-9239, Engineering News-Record.

EMPLOYMENT SERVICE

SALARIED PERSONNEL $3,000-$25,000. This confidential service established 1920, is geared to needs of high grade men who seek a change of connection under conditions assuring, if employed, full protection to present position. Send name and address only for details. Personal consultation invited. Jira Thayer Jennings, Dept. L, 241 Orange St., New Haven, Conn.

POSITIONS WANTED

CHIEF STRUCTURAL Project Engineer, M.S.C.E. degree, registered, 20 years experience design & construction hydro-electric dams, locks, buildings, chemical plants, desires position of responsibility. PW-9008, Engineering News-Record.

SUPERINTENDENT — WIDELY Experienced all forms of pressure grouting, dams and foundations, waterproofing. All forms stabilization work, structure solidification, cast-in place piping, etc. Desires permanent connection with progressive firm, ten years with present employer but desire to make change. Moderate salary or will consider profit sharing proposition. Competent Estimator, 44 years old, married, go anywhere. No booze. PW-9025, Engineering News-Record.

GENERAL CONSTRUCTION Supt., Engineer. 20 years experience in large industrial, commercial and institutional projects, good organizer. Now employed, desires change. PW-9180, Engineering News-Record.

CONSTRUCTION SUPERINTENDENT available soon. Age 40. Good health. Energetic. Specialist concrete and wooden structures. Twenty years varied experience heavy construction, cofferdams, sewers, dams, bridges, army camps, defense plants; more recently large housing projects. Southeastern U. S. or Caribbean area preferred. Allen McSherry, P. O. Box 2108, Miami, Fla. Phone 83-1686.

CIVIL, SANITARY Engineer; M. ASCE.; Registered P.E.; Advanced degrees in engineering. Twenty years construction, engineering and engineering teaching experience. Highway, bridges, buildings, sewers and sanitary installations. Administrative and business experience. PW-9098, Engineering News-Record.

CIVIL ENGINEER, College graduate, age 44, P.E. license in six states, 22 years on construction of highways, bridges, sewers, buildings, utility valuation, last 14 years on steam power plants as Project Engineer. Presently employed, but desires permanent location. Location immaterial. PW-9102, Engineering News-Record.

ELECTRICAL ENGINEER — Industrial and utility construction estimator, superintendent and designer. Age 33; married; registered. Write PW-9114, Engineering News-Record.

SANITARY ENGINEER—Complete charge of preliminary investigations, surveys, design, preparation of contract drawings and specifications, reports, estimates. Twenty-five years experience sewage treatment, water filtration, sewer and water systems. Available April first. PW-9147, Engineering News-Record.

POSITIONS WANTED

OFFICE ENGINEER Registered—Thoroughly experienced Building Construction Hospital Specialist. Coordinating sub-contractors, pricing, excellent personality. PW-9259, Engineering News-Record.

REGISTERED C.E. 20 years experience in design and construction of roads, bridges, streets, sewers, airports, etc. Desires permanent position. PW-9236, Engineering News-Record.

GRADUATE, REGISTERED, Civil Engineer. 9 years varied construction experience, field and office. 4 years in Latin America as water works engineer. Can speak Spanish. Desires foreign work or domestic if good opportunity is presented. PW-9211, Engineering News-Record.

ENGINEER, GRADUATE Civil — Veteran — 4 yrs. experience building design & construction seeks position with future preferably entailing both office & field work. N. Y. area. PW-9230, Engineering News-Record.

ENGINEER, OF integrity and character, who is thoroughly experienced in bidding, scheduling and planning both heavy construction and buildings, particularly Alaska area desires position as Chief Engineer, Executive Engineer or assistant. Present location, Seattle, Washington. PW-9220, Engineering News-Record.

BUILDING CONSTRUCTION Superintendent or General Superintendent, 25 years experience, thoroughly familiar with all types of Building Construction. References. Address E. Harold Bowen, 3450 N. W. 79th Street, Miami 38, Florida.

BUSINESS OPPORTUNITY

GENERAL BUILDING Corporation wishes to associate with a heavy general contractor to qualify for a cost-plus defense project. BO-9241, Engineering News-Record.

WORK WANTED

Design and Drafting-
Structural, concrete, foundations, and piping, for industrial or chemical plants and oil refineries. Quality service. All or parts of jobs accepted. WW-9263, Engineering News-Record.

PART TIME WORK WANTED

ENGINEER, MECHANICAL-Structural. 20 years experience, design of heavy machinery, structural steel and concrete, material takeoffs. Licensed 3 states. Desires part time or subcontract work. Pacific northwest area. PTWW-9251, Engineering News-Record.

FOR LEASE

WANT TO LEASE out several quarries of Blue-stone in Palenville, N. Y. Owner, J. C. Stone C.E., 230 E. 196 St., Bx. 58, N.Y.C.

STRUCTURAL ENGINEERING
A Course of Instruction by Mail
FOR FORTY YEARS our courses have helped thousands to better positions and to pass State Board Examinations.
Information sent without obligation. Write today.
WILSON ENGINEERING CORP.
College House Offices - Dept. E.
Harvard Sq. Cambridge, Mass.

ESTIMATING SERVICE
Any Trade and Type of Project
Literature and Sample on request
Construction Survey Cooperative
101 Park Ave., New York 17, N. Y.
MUrray Hill 5-7317 Founded 1922

WANTED
GOOD USED DIESEL
ELECTRICAL or MECHANICAL
STANDARD GAUGE
LOCOMOTIVES
45-Ton 65-Ton 70-Ton
80-Ton 100-Ton
W-9165, Engineering News-Record
520 N. Michigan Ave., Chicago 11, Ill.

WANTED
TO RENT OR BUY
8 to 12 Ton, 2 Axle, Steel wheel tandem Rollers
S. J. Groves & Sons Co.
GLadstone 1841
Minneapolis 13, Minnesota

WANTED
Washington-Baltimore Area
D7 (or Equiv.) Bulldozer, diesel
Low-Bed Platform Trailer—15 ton Cap.
Pumps, two 2" Marlow S.P.C.
Truck, 3 ton, 14 ft. min. Platform
Saw Table, gasoline powered
Concrete-vibrators, two.
Field Offices, 3; Storage Shanties, 2.
RENTAL PURCHASE OR INSPECTION BASIS
BONWIT CONSTRUCTION CO., Inc.
100 Gold Street New York 38, N. Y.

WANTED
(1) Lattice type 200' stationary 24" belt and (5) 100' 16" belt Conveyors complete with troughing rollers and idlers. Also: 1200' 6" water pipe.
DAVID RHODES
at RED BRIDGE
Box 314 Chester, New York

WANTED
LeTourneau model L.S. Scraper Wagon and a 70 ton or over Talbert machinery trailer.
A. & J. BUYERS, INC.
3580 Sheridan Drive Buffalo 21, N. Y.

WANTED
Used Diesel Electric Locomotive Crane 1½ yd capacity with 60 ft boom.
CONTRACTORS SALES CO., Inc.
Box 988, Troy, N. Y. ARsenal 3-5420
Erie Blvd. SYRACUSE Syracuse 6-3141

STRUCTURAL STEEL ERECTION
Buildings, Bridges, and Power Houses 40 derricks and hoists—24 cranes available
Large quantities of erection equipment
KARL KOCH ERECTING CO., INC.
362 CASANOVA ST. *Kilpatrick 2-3800* BRONX 59, N Y.

EQUIPMENT FOR SALE

In New York City Area

4—I-R Wagon Drills
5—Dust Collectors
5—Euclid End Dump Trucks, Model 27 FD
1—Eimco Model 30 Rockershovel, 36" gauge
2—Conway Model 75 Mucking Machines, 36" gauge

In St. Louis, Mo.

1—500 cfm Diesel Ingersoll-Rand Air Compressor
1—210 cfm Schramm Air Compressor
1—International TD-9 Hi-Lift
1—Oliver Model 80 Rubber Tired Tractor
1—Parsons Model 26d Trench Liner—New 1950
1—Parsons Model 310 Trench Liner—New 1950
1—Austin Model 155 Trencher
1—Carr Model A Formgrader

FRAZIER-DAVIS CONSTRUCTION CO.
1319 Macklind Ave. St. Louis 10, Mo.

RAILS-TIES
TRACK ACCESSORIES

COMMERCIAL METALS COMPANY
BOX 1046 DALLAS, TEXAS

NEW AND RELAYING RAILS
"FASTER From FOSTER"
Largest stocks in U.S.—New and Relaying Rails, Track Tools and Accessories. All your trackage needs — new installations or replacements filled "FASTER from FOSTER." All material backed by Foster Guarantee. Write for Catalog.
• STEEL SHEET PILING • PIPE
L.B. FOSTER CO.
Pittsburgh 30, Pa. New York 7, N. Y.
Chicago 4, Illinois Houston 2, Texas

NEW—RAILS—Relayers

All sizes and weights. Also frogs, switches, spikes, bolts, tie plates, contractors' and mine equipment carried in stock.

M. K. FRANK
480 Lexington Ave. Park Bldg.
New York, N. Y. Pittsburgh, Pa.
Reno, Nevada Carnegie, Pa.

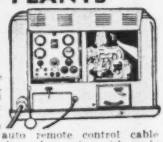
New **RAILS** Relay

Tie Plates - Spikes - Frogs & Switches, Etc.

W. H. DYER CO., INC.
1859-X Railway Exchange Bldg., St. Louis, Mo.
Stocks at Various Points — Quick Service

LIGHT PLANTS

Brand New! War Surplus
Signal Corps
Power Unit PE 197



115v 60 cy. A.C. single ph. 5 K.W. Hobart, water cooled, 14 h.p. 4 cyl. Hercules engine. Remote Control, complete panel board with instruments, 150 ft. auto remote control cable with reel; 150 ft. #6 hvy. duty wire with reel; housed in metal case with replacement parts & tools. Cable with reels alone worth $400. Reg. price of unit $1900. Shipping wt. 1250 lbs. Our price, complete

$895.00

f.o.b. Chicago

WRITE FOR ILLUSTRATED FOLDER
WELLWORTH TRADING CO.
1831 S. State St. Dept. ENR Chicago 16, Ill.

For Sale—Like New

1—General Electric Generator, Model 12G308, alternating type, 3 phase, 60 cycle, 50KW, powered by TD18 International Harvester Diesel Engine.
1—D8 Caterpillar Motor, D13000.
1—D7 Caterpillar Motor, D8800

New Parts for:

TD18, TD14, TD9, International, Caterpillar & Allis Chalmers. Also have Fairleads, Power Control Units & Cutting Edges.

Bargain

1—TD18 International Tractor, complete with bulldozer blade.
1—D7 Caterpillar, Hydraulic.

Julius Hebenstreit, Inc.
56-15 58th St. Maspeth, L. I., N. Y.

FOR SALE

FRONT END LOADER. Wagoner Scoopmobile R—Serial #2097. Mounted on Rubber Tires, Bucket—Blade A Frame. Excellent Condition. Immediate Delivery. Price—$2375.00 F.O.B. Cats, Arlington, Va.

J. A. LAPORTE,
1101 Wilson Boulevard, Arlington, Virginia.
Glebe 2212.

SURVEYING INSTRUMENTS
USED • REBUILT • SALE
RENT • REPAIRING

INSTRUMENT REPAIR BY CRAFTSMEN

Our craftsmen have a completely equipped department fully able to accommodate the repair of all makes of transits, levels and measuring tape. Work includes thorough overhaul, cleaning, oiling and adjustment.

Precision work guaranteed.

DAVID WHITE COMPANY
317 W. Court St., Milwaukee 12, Wis.

INSTRUMENTS FOR RENT

We rent transits and levels on a monthly or yearly basis. Reasonable rates. All instruments are fully guaranteed in first class working order.

DAVID WHITE COMPANY
317 W. Court St. • Milwaukee 12, Wis.

FOR SALE

One Northwest Model 25, serial #6532, equipped as a backhoe. This machine was rebuilt completely in July of 1950.

One D-2 Caterpillar Tractor equipped with a LaPlant-Choate Hydraulic Bulldozer with 16" tracks, crankcase and radiator guard, electric lights and starting system. The serial number is 5U5214. This machine was new in June of 1950—760 hours. Like new.

One D-7 Caterpillar Bulldozer, serial #7M553, with a LeTourneau Power Control Unit equipped with a Hyster Crane and Dragline attachment complete with a ½ yard dragline bucket.

ANGELO DI PONIO, CONTRACTOR
16596 Greenfield Rd. Detroit 27, Mich.

FOR SALE

820 Lorain Shovel Diesel, long crawlers
8" Amer. Mag. Sand pump type S with or without Cummings diesel motor.
3' short Head Symons Cone Crusher
Bay City Model 45 Backhoe attachment
Northwest model 25 Shovel Attachment, new

STONE EQUIPMENT CO.
10038 W. Jefferson River Rouge 18, Mich.

AVAILABLE
80 TON DIESEL ELECTRIC LOCOMOTIVE
G.E. New 1942

Will exchange for smaller locomotive and locomotive crane, or two smaller diesel locomotives.

FS-9196, Engineering News-Record
520 N. Michigan Ave., Chicago 11, Ill.

REX 200 DOUBLE PUMPCRETE
FOR SALE OR RENT

Rex 200 Double Pumpcrete together with over 800 feet of pipe, fittings and auxiliary equipment. Following completion of project recently, equipment has been completely rebuilt and is in top shape. Can be purchased on rental basis, or available for rent.

Bass Engineering & Construction Co.
Birmingham, Mich. Telephone: Detroit JO-4-6150

FOR SALE

36 Pcs. D. P. 1-42.7# Steel Sheet Piling
9' to 10' long.
Price: 4½c lb. Trenton

KEYSTONE STRUCTURAL STEEL COMPANY
P. O. Box 377 Trenton 3, New Jersey

Used 75 Ton Baldwin Steam Locomotive, Class 8-34-D-550 with tender. Price and information on request.

DALTON SUPPLY CO.
2829 Cedar St. Phila. 34, Pa.
GArfield 6-1800

3 1950 Mack LJS Dump Trucks With 200 Cumming Deisel Motors
Telescopic Twin Hoists
Box 18 yard water level
1100-24 tires. Approximately 20,000 miles
Factory Guarantee 100,000 miles
Leaving for the Army.

FS-9193, Engineering News-Record
330 W. 42 St., New York 18, N. Y.

FOR SALE
2—SUPER C TOURNAPUL SCRAPERS

Equipped with
Cummins Diesels and Cabs
Ready to go to Work

UNITED TRACTOR & EQUIPMENT CORPORATION
135 East 146 Street Bronx, N. Y.
Cypress 2-0800

FOR SALE
LATE MODEL BARBER-GREENE ASPHALT PLANT

100 TON COMPLETE HOT MIX PLANT, WITH DUST COLLECTOR. CATERPILLAR DIESEL POWERED. SKID-MOUNTED TANKS WITH STEAM COILS. 150 H.P. HORIZONTAL BOILER AND USUAL AUXILIARY EQUIPMENT. THIS PLANT IS IN EXCELLENT CONDITION AND CAN BE SEEN OPERATING. WRITE OR CALL

SOUTHWEST GENERAL CONSTRUCTION COMPANY
426 RESERVE LOAN LIFE BLDG., DALLAS, TEXAS PHONE: RANDOLPH 9215

FOR SALE
Bearing Piles and H-Beams

8" x 36#	40'
10" x 42#	40'
10" x 49#	40'
12" x 53#	40'
12" x 65#	40'

Plates — from 3/16" to 1"

WRITE WIRE CALL

ALBRO STEEL COMPANY
47-29 Van Dam Street
Long Island City 1, N. Y.
Stillwell 4-2720

PUMPCRETES
Rebuilt Current Models
For Sale or Rent
CONCRETE EQUIPMENT COMPANY
312 E. Wisconsin Ave.
Milwaukee 2, Wis.

FOR SALE
1—Model S112 Bucyrus Scraper Ser. #26444 Excellent Condition—$4,500.

Campanella & Cardi Const. Co.
780 Jefferson Blvd. Hillsgrove, R. I.

FOR RENT

PIPE

FOR SALE
BUCKEYE TRENCHER, MODEL 16-S. Wheel Type—digs 5½' x 22" wide mounted on Chevrolet Chassis, dual rear tires. Excellent condition. Immediate delivery. Price—$2975.00 F.O.B. Cars, Arlington, Va.

J. A. LAPORTE,
1101 Wilson Boulevard, Arlington, Virginia
Glebe 2212.

FOR RENT
- 24 truck and tractor cranes
- Booms to 150'
- Special terms for long term rentals
- Derricks, hoists, and compressors.

KOCH
362 Casanova St., Bronx 59, N. Y.
Kilpatrick 2-3800

EST. 1904
DAVIDSON
PIPE COMPANY INC.
FORMERLY
ALBERT & DAVIDSON PIPE CORP.
ONE OF THE LARGEST STOCKS IN THE EAST
Seamless and Welded ⅛" to 26" O.D.
All wall thickness Manufactured.
Specialty large sizes.
Cutting — Threading — Flanging —
Fittings — Valves.
Call GEdney 9-6300
50th St. & 2nd Ave., B'klyn 32, N. Y.

PILING

We do a Nation-Wide business in
STEEL SHEET PILING
New & Used Rented & Sold

143 pcs. 60 & 50 ft. Inland I-22-Chicago
325 pcs. 45 & 40 ft. Beth. DP-2 New Jersey
178 pcs. 30 ft. Beth. AP-3-New York
234 pcs. 20 ft. Car. M-115-Illinois
141 pcs. 19-16 ft. Inland I-27-Oklahoma

Other lengths & sections at various locations

All sizes Vulcan & McKiernan Pile Hammers & Extractors for Rent and Sale—Shop Rebuilt
Regardless of location of your job, phone or wire.

MISSISSIPPI VALLEY EQUIPMENT CO.
509 Locust St. CH 4474 St. Louis, Mo.
"WE BUY STEEL PILING FOR CASH"

FOR RENT
MANITOWOC SPEEDCRANES

Late model combination shovels, cranes & draglines. 1¼ to 2½ cu. yd. capacities, 25 to 60 ton lifting capacities, 60 to 80 ft. booms, Diesel powered, complete with light-plants.

Special rates on long-term rentals

McCARRICK BROS.
1700 E. Ridge Pike Norristown, Pa.
Box 291 *Tel. Norristown 4231*

FOR SALE—*Immediate Delivery*

C. I. Water Pipe A.W.W.A. Standard

BELL & SPIGOT—12 inch, 16 inch, 20 inch, 24 inch and other sizes
FLANGED PIPE— 4 inch, 6 inch, 8 inch, 10 inch, 12 inch

C.I. Water Pipe Fittings—B & S, and Flanged—All Kinds and Sizes

SOIL PIPE—EXTRA HEAVY—8 inch, 10 inch, 12 inch, 16 inch

TAGCO, INC.
111 Front Street Hempstead, N. Y.
Tel.—Hampstead 2-5535 or 2-8857

STEEL SHEET **PILING**
LARGEST *RENTAL* STOCKS IN U.S.

The exact lengths and sections of Steel Sheet Piling to meet all needs—shipped *"FASTER From FOSTER."* RENT: Corrugated Steel Piling, Pile Hammers & Extractors.

• RAILS • PIPE • WIRE ROPE

L.B. FOSTER CO.
Pittsburgh 30, Pa. New York 7, N. Y.
Chicago 4, Illinois Houston 2, Texas

FOR RENT
NEW AND ALMOST NEW
MANITOWOC SPEEDCRANES
2½ Cu. Yd.—60 TON CAPACITY
Clemens Construction Company
P. O. Box 266 West New York, N. J.

FOR RENT
30 Ton American Diesel Locomotive Crane
Model #830 Serial #2419.
Hydro Controls 55' Boom
Crane has had less than 800 hours use
Now at Joliet, Illinois

O. K. DONOHOE STEEL ERECTORS
242 North Bluff Street Joliet, Illinois
Not For Sale

PIPE AND ACCESSORIES
IF IT'S MADE, WE HAVE IT!

Seamless and Welded—Every Size and Wall Thickness—Cast and Wrought Iron, Steel, Alloys

POWER PIPE FABRICATING
Bending, Coiling, Flanging, Threading, Beveling, Lining, etc.

Valves & Fittings
Piling & Fittings
Culverts
SPEED-LAY PIPE SYSTEMS
Write for brochure

ALBERT
PIPE SUPPLY CO., INC.
Berry at North 13th St
Brooklyn 11, N. Y.
Phone EVergreen 7-8100

FOR SALE

Portable crushing & screening plant rated at 100 T. P. H. including 10 x 36 jaw and 22 x 40 Rolls with 4 x 10—2½ deck scalping screen in closed circuit, conveyors, hopper, feeder, 150 HP diesel power unit, etc. for gravel or crushed stone operation. Spare parts. ALSO 150 HP GM Diesel Power Unit and 40 KVA—230 V GM diesel generating unit.

SULLIVAN HIGHWAY PRODUCTS CORPORATION
Summitville, New York

AVAILABLE
FACTORY NEW DIESEL LOCOMOTIVE CRANE

Due to change in plant operation, will exchange crane for diesel locomotives on suitable basis.

FS-9197, Engineering News-Record
520 N. Michigan Ave., Chicago 11, Ill.

FOR SALE

TD-18 Tractor with Bucyrus-Erie hydraulic blade, new 1949 condition excellent.
TD-9 Tractor with Bucyrus-Erie hydraulic blade, new 1948 condition excellent.
Bay City 30 chain crowd shovel, condition excellent.
CH£ Triton roller as good as new.

HAROLD MacQUINN
Bar Harbor, Maine — Phone 769

TANDEM ROAD ROLLER

Buffalo Springfield KT-24B, with M-330 Continental gas engine. 8-12 ton. Like new, exceptional value.

FLEETWOOD PAVING CORP.
Carleton Ave. — Mt. Vernon, N. Y.
Phone Mt. Vernon 8-2366

FOR SALE

2 Yd. Lima Model 802
1¼ Yd. Lorain
2 Yd. Northwest #8
3½ Yd. Lima 1201
3 Yd. Monaghan
35 Ton Whirley Electric
10 Ton Krane Kar
35 Ton Stiff Leg Derrick

3 Drum Steam Hoist 10½ x 14
Chests
10 to 50 ton Gantry Cranes
10 to 60 ton Locomotive Cranes
15 ton Truck Crane #3 Northwest
20 Ton Truck Crane General
Locomotives & Cars
25 Yd. LeTourneau Scrapers

5 to 32 Yd. Wagons
Hammers Vulcan #2-3-3000 — McK.T. #4-5-6-7-9B2—E2 Extractor Pumpcrete Machine
¾ Yd. Bhoe attachment Lima
Bins — 10 to 450 ton — 200 barrel to 750 Brl.
10" Hydraulic Dredge

STONE THE CRANE MAN — 1132 Prudential Bldg., Buffalo 2, N. Y.

FOR SALE

½ Yard Dipper Shovel Front for Osgood Model #8-3038

WITTEN IRON & METAL CO.
Box 35 — Gastonia, N. C.

PROFESSIONAL SERVICES

Cards arranged by states, cities, names

Additional cards on following pages

Polk, Powell and Hendon

Engineers—Consultants
Harry H. Hendon—
Hugh A. Powell

Water Systems, Sewers and Sewage Treatment Plants, Steam and Hydro Plants, dams, drainage, industrial buildings, municipal planning reports, plans, estimates and construction supervision.

620 Chamber of Commerce Bldg.,
Birmingham 3, Ala.

Palmer and Baker, Inc.

Consulting Engineers
For Problems of Transportation
Subaqueous Vehicular Tunnels
Rock Tunnels
Utility Tunnels
Bridges
Grade Separations
Highways
Airports
Traffic Studies
Parking Problems
Waterfront & Harbor Structures
Complete Materials, Chemical and Soils Laboratories.
Mobile, Alabama

John S. Cotton

Consulting Engineer
Hydroelectric, water supply, irrigation, and multiple purpose projects; flood and erosion control; river basin development planning; dams and their foundations; tunnels; marine structures; valuations; rates.
28 Brookside Dr., San Anselmo, Calif.

Charles U. Kring Associates

Engineers, Consultants
Design Investigations Reports
Bomb Resistant Buildings
Protective Structures, Bomb Shelters
Industrial and Commercial Buildings
Bridges, Dams, Airports
251 Kearny St. San Francisco 8

Heron Engineering Co.

Chemical, Mining, Industrial and Hydraulic Plants. Irrigation, Water Supply, Power and Sewerage Systems, Large Rock Fill Dams, Airports, Oil, Gas and Water Pipe Lines.
2000 So. Acoma, Denver 10, Colorado
Chama, New Mexico

Consult these Specialists:

Let them save your time by bringing their broad experience in their specialty to bear on your problems.

Duval Engineering & Contracting Co.

General Contractors
FOUNDATION BORINGS
For Engineers and Architects.
Jacksonville, Florida

Patchen & Zimmerman

Engineers
Construction Plant, Cofferdams, Structures, Industrial Plants, Dams, Sewerage and Sewage Treatment. Water Supply and Treatment, Supervision, Surveys, Reports.
Daniel Field Airport,
Augusta, Ga.

Law-Barrow-Agee Laboratories, Inc.

Soils Engineers & Consultants
Soil Testing—Soil Boring—Rock Drilling—Load Testing—Field Control—Engineering Studies—Chemical Analysis—Physical Testing
Box 1558 Atlanta 1, Ga.
Serving the entire South

E. J. Albrecht Company

Engineers—Contractors

Steel, chemical and power plants, Dams, flood control projects, railroads, Bridges, tunnels, heavy excavation.

2626 West 26th Street, Chicago 8

Alvord, Burdick & Howson

Charles B. Burdick
Louis B. Howson, Donald H. Maxwell
Consulting Engineers

Water Works — Sewerage
Water Purification — Sewage Treatment
Flood Relief — Power Generation
Drainage — Appraisals

Room 1401
20 North Wacker Drive, Chicago

Consoer, Townsend & Associates

Water Supply—Sewerage—Flood Control & Drainage — Bridges — Express Highways—Paving—Power Plants, Appraisals — Reports — Traffic Studies—Airports.
351 East Ohio St., Chicago 11, Illinois

De Leuw, Cather & Company

CONSULTING ENGINEERS
Transportation, Public Transit and Traffic Problems

Industrial Plants — Grade Separations
Railroads — Expressways
Subways — Tunnels
Power Plants — Municipal Works

150 North Wacker Drive
Chicago 6, Ill.

79 McAllister Street
San Francisco 2, Calif.

Greeley and Hansen

Engineers
Water Supply, Water Purification
Sewerage, Sewage Treatment
Flood Control, Drainage, Refuse Disposal
220 S. State Street, Chicago 4

Harza Engineering Co.

Consulting Engineers
L. F. Harza
E. Montford Fucik — Calvin V. Davis
Hydro-Electric Power Projects
Transmission Lines, System Management, Dams, Foundations, Harbor Structures, Soil Mechanics
400 W. Madison St., Chicago 6, Ill.

Hazelet & Erdal

Consulting Engineers

Fixed and Movable Bridges — Designs
Supervision
Superhighways — Investigations
Industrial Bldgs. — Reports
Airports — Dams — Surveys

Monadnock Block, Chicago 4, Ill.
Dixie Terminal Bldg., Cincinnati 2, O.
Heyburn Bldg., Louisville 2, Ky.

Pioneer Service & Engineering Co.

Consulting and Design Engineers
Operations - - - Purchasing
Steam - - Hydraulic - - Gas
Public Utilities - - Industrials
231 So. La Salle St. Chicago 4

Sargent & Lundy

ENGINEERS
Steam and Electric Plants
Utilities—Industrials
Studies—Reports—Design
Supervision
Chicago

Soil Testing Services, Inc.

Theo. W. Van Zelst — Carl A. Metz
John P. Gnaedinger
Soil Borings — Rock Coring
Engineering Testing of Soils
Soil & Foundation Reports
4520 W. North Ave. Chicago 39

Interstate Engineering

Consulting Engineers
Design and Supervision of Municipal Improvements
Water Works, Sewage, Drainage, Surveys
Foundation Borings
Rock Island, Illinois

Jenkins, Merchant & Nankivil

Consulting Engineers
Municipal Improvements — Sewerage
Power Development — Water Systems
Traffic Surveys — Industrial Plants
Flood Control — Recreational Facilities
Airports — Investigations and Reports
805 E. Miller St., Springfield, Ill.

Boyd E. Phelps, Inc.

Engineers
Water Supply and Purification
Sewage and Industrial Waste Treatment
Power Generation, Airfields, Reports, Investigations, Appraisals.
622½ Franklin St., Michigan City, Ind.

Chas. W. Cole & Son

Sewerage, SewageTreatment, Industrial Wastes, Water Supply, Water Treatment, Airports- Industrial Buildings.
Chas. W. Cole, Sr. Chas. W. Cole, Jr.
Ralph J. Bushee, M. J. McErlain
Wilber H. Gartner
220 W. LaSalle, South Bend, Ind.

Stanley Engineering Company, *Consulting Engineers*

Airports - Drainage - Electric Power
Flood Control - Industrial - Rate Studies - Sewerage - Valuations - Water Works
Hershey Building, Muscatine, Ia.

J. Stephen Watkins

J. Stephen Watkins — G. B. Watkins
Consulting Engineers
Complete engineering field crews available for field surveys or construction layout work.
East High Street Lexington, Kentucky
Branch office 210 Heyburn Building, Louisville, Kentucky

G. Douglas Andrews Associates

Engineering Consultants
General Engineering
and Consulting Services
212 Washington Ave. — 207 Pine Street
Towson, Baltimore 4 — Harrisburg
Maryland — Pennsylvania

PROFESSIONAL SERVICES

Cards arranged by states, cities, names

Additional cards on preceding and following pages

Whitman, Requardt and Associates

Engineers — Consultants

Civil — Sanitary — Structural
Mechanical — Electrical
Reports, Plans, Supervision, Appraisals
1304 St. Paul Street
Baltimore 2, Maryland

Williar & Robertson

ENGINEERS—CONSULTANTS
FORMERLY
SAXE, WILLIAR & ROBERTSON

Bridges—Structures—Foundations
Industrial Buildings

Baltimore — Richmond
Maryland — Virginia

Chas. T. Main, Inc.

Engineers
Design and Supervision of Construction for Industrial Plants
Electrical, Steam and Hydraulic Engineering
Investigations, Reports and Appraisals
Chamber of Commerce Bldg.
80 Federal St. Boston, Mass.

Metcalf & Eddy

ENGINEERS
Investigations — Reports — Design
Supervision of Construction and Operation
Management — Valuation — Laboratory
Statler Building, Boston 16

Philip B. Streander and Affiliates

Consulting Sanitary Engineers
Water Supply, Treatment, Distribution
Sewage, Sewage Treatment
Plans, Supervision, Reports
683 Atlantic Ave. Boston 11, Mass.

Black & Veatch

Consulting Engineers

Water - Sewage - Electricity - Industry

Reports, Design, Supervision of Construction, Investigations, Valuation and Rates.

4706 Broadway, Kansas City 2, Mo.

Burns & McDonnell

Consulting and Designing Engineers

P. O. Box 7088, Kansas City, 2, Mo.
1404 E. 9th St., Cleveland, 14, Ohio

Harrington & Cortelyou

Consulting Engineers
Frank M. Cortelyou
E. M. Newman F. M. Cortelyou, Jr.
Movable and Fixed Bridges of All Types, Foundations, and Related Structures.
1004 Baltimore Kansas City 6, Mo.

Russell & Axon

Consulting Engineers
Geo. S. Russell F. E. Wenger
Joe Williamson, Jr.
Water Works, Sewerage, Sewage Disposal, Industrial and Power Plants, Appraisals.
408 Olive Street Municipal Airport
St. Louis 2, Mo. Daytona Beach, Fla.

Sverdrup & Parcel, Inc.

Consulting Engineers
Bridges, Structures and Reports, Industrial and Power Plant Engineering.
Syndicate Trust Bldg., St. Louis 1, Mo.
220 Bush St., San Francisco 4, Calif.

William J. Wenzel

Consulting Engineer

Great Falls, Montana
Developing the Great Northwest

Edwards, Kelcey & Beck

ENGINEERS
Surveys - Reports - Economic Studies
Design - Supervision - Transportation
Traffic - Parking - Terminals - Highways - Expressways - Grade Separations - Tunnels - Bridges - Water Supply
3 William Street Newark 2, N. J.

Benjamin L. Smith & Associates

Engineers
Investigations—Reports
Designs—Supervision—Valuations
Municipal Engineering and Public Utilities
11 North Pearl St. Albany 7, N. Y.

E. Lee Heidenreich, Jr.

Consulting Engineer
Quarries — Plant Layout
Crushing Plants — Storage
Milling Plants — Methods
Concrete Products Plants — Design
Appraisals
67 Second St. Newburgh, New York

Barker & Wheeler

Water Supply — Utility and
Sewerage — Industrial
Sewage Disposal — Valuations
Power Systems — Reports

New York City, 11 Park Place
Albany, N. Y. 36 State St.

Clinton L. Bogert Associates

Consulting Engineers
Water and Sewage Works
Refuse Disposal — Industrial Wastes
Drainage — Flood Control
624 Madison Ave., New York 22, N. Y.

Bowe, Albertson & Associates

Engineers
Water and Sewage Works—Industrial Wastes—Refuse Disposal—Municipal Projects—Airfields—Industrial Buildings—Reports—Designs—Estimates—Valuations—Laboratory Service.
110 William St., New York 7, N. Y.

Francis L. Brown

Consulting Engineer

Airports, Highways, Water Supply, Sewage Disposal, Industrial Bldgs., Bridges

46 Cedar St. New York, N. Y.

Buck, Seifert & Jost

Consulting Engineers
(Formerly Nicholas S. Hill Associates)
Water Supply — Sewage — Hydraulic Developments, Reports and Valuations, Chemical and Biological Laboratories.
New York City, 112 E. 19th St.

Hugh L. Cooper & Co.

Incorporated

General Hydraulic Engineering

Including the design, financing, construction and management of hydro-electric power plants.

488 Madison Ave., New York 22, N. Y.

Ebasco Services Inc.

ENGINEERS
CONSTRUCTORS
BUSINESS CONSULTANTS

Design and Construction
Financial and Operating Consultation
Investigations and Reports
Consulting Engineering

Two Rector Street New York
209 S. LaSalle Street Chic. 4, Ill.
1604 K Street, N.W. Wash. D. C.

L. Coff

Consulting Engineer

Prestressed Concrete
Bridges and Frames
198 Broadway New York 7, N. Y.

Fay, Spofford & Thorndike

Engineers
Charles M. Spofford — Ralph W. Horne
John Ayer — William L. Hyland
Blon A. Bowman — Frank L. Lincoln
Carroll A. Farwell — Howard J. Williams

Bridges and Industrial Plants
Water Supply and Sewerage Works
Port and Terminal Works — Airports

Valuations, Investigations, Designs, Supervision of Construction.

11 Beacon St., Boston, Mass.
420 Lexington Ave., N. Y.
(Graybar Bldg.)

Fraser-Brace Engineering Co., Inc.

Design Engineers & Constructors
of
Hydro-electric Developments
Metallurgical, Explosives, & Industrial Plants
Chemical & Process Industries
Railroads—Tunnels—Port Facilities

10 East 40th St.,
New York 16, N. Y.
Lex 2-5570

W. C. Gilman & Company

Consulting Engineers
Revenue Estimates — Toll Roads, Bridges & Parking Facilities.
Investigations; Valuations; Rates — Electric, Gas & Transit Utilities.
55 Liberty St., New York 5

Hardesty & Hanover

Consulting Engineers

Successors to Waddell & Hardesty

Bridges
Long Spans of All Types
Movable—Lift, Bascule and Swing
Hanover Skew Bascule
Steel and Concrete Spans
Grade Crossing Eliminations

Other Structures
Foundations
Supervision, Reports, Appraisals

101 Park Avenue, New York 17, N. Y.

Frederic R. Harris, Inc.

CONSULTING ENGINEERS
Harbors, Piers & Bulkheads, Drydocks.
Foundations, Soil Mechanics.
Sanitary & Industrial Waste Disposal.
Water Supply, Flood Control.
Airports, Highways, Bridges.
Power, Industrial Plants.

27 William Street New York
3 William Street Newark
Fidelity Phila. Trust Bldg. Philadelphia
Ferry Bldg. San Francisco

Howard, Needles, Tammen & Bergendoff

Consulting Engineers

Bridges and Structures

New York, N. Y., 55 Liberty St.
Kansas City, Mo., 921 Walnut St.

Knappen Tippetts Abbett Engineering Co.

Ports, Harbors, Flood Control, Power, Dams, Bridges, Tunnels, Highways, Subways, Airports, Traffic, Foundations, Water Supply, Sewerage, Reports, Design, Supervision, Consultation.

62 West 47th Street, New York City

Modjeski and Masters

Consulting Engineers

Design, Supervision, Reports, Inspection and Investigations, of Bridges, Structures, and Foundations
535 Fifth Ave. — State Street Bldg.
New York, N. Y. — Harrisburg, Penna.

Moran, Proctor, Freeman & Mueser

Consulting Engineers
Foundations for Buildings, Bridges and Dams; Tunnels, Bulkheads, Marine Structures; Soil Studies and Tests; Reports, design and supervision.

New York 17, N.Y., 420 Lexington Ave

PARDO, PROCTOR, FREEMAN & MUESER
Ap. Corrfos 614 Caracas, Venezuela.

Parsons, Brinckerhoff, Hall & Macdonald

ENGINEERS

Airports, Bridges, Tunnels, Highways, Traffic and Transportation Reports, Subways, Foundations, Harbor Works, Valuations, Power Developments, Industrial Buildings, Dams, Sewerage, Water Supply.

51 Broadway, New York 6, N. Y.

Malcolm Pirnie Engineers

Civil & Sanitary Engineers

Malcolm Pirnie — Ernest W. Whitlock
Richard Hazen — G. G. Werner, Jr.

Investigations, Reports, Plans, Supervision of Construction and Operations. Appraisals and Rates

25 W. 43rd St., New York 18, N. Y.

The Pitometer Company

Engineers
Water Waste Surveys
Trunk Main Surveys
Water Distribution Studies
Penstock Gaugings
New York, 50 Church St.

Alexander Potter Associates

Consulting Engineers

Water Works, Sewerage, Industrial Wastes, Hydraulic Works, Reports, Designs, Appraisals.

50 Church St., New York, N. Y.

Clyde Potts Assoc.

Weston Gavett-Stanley N. Williams
Consulting Sanitary Engineers
Sewerage and Sewage Disposal
Water Works and Water Supply
Valuations and Appraisals
30 Church Street, New York 7

Sanderson & Porter

Engineers and Constructors

New York — Chicago
San Francisco — Los Angeles

When you need a SPECIALIST in a hurry . . .

Engineering News-Record's Professional Service Section offers the quickest, most direct method of contacting consultants who may be available NOW.

PROFESSIONAL SERVICES

Cards arranged by states, cities, names

Additional cards on preceding pages

Scheidenhelm, F. W.

Consulting Engineer

Hydraulic Engineering; Hydro-electric Development; Water Supply; Flood Control; Engineering Problems relating to Water Rights and Water Power Law; Appraisals. 30 Church Street, New York 7, N. Y.

Seelye, Stevenson & Value,

Consulting Engineers

Not affiliated with builders

MANUFACTURING PLANTS

Plans, Specifications, Field Supervision, Reports, Valuation.

HEAVY ENGINEERING

Airports, Paving, Bridges, Stadia, Grandstands, Dams, Water Supply, Sanitation, Tunnels, Piers, Harbor Work, Swimming Pools, Industrial Waste Disposal.

STRUCTURAL DESIGN

Skeleton Buildings, Foundations, Soil Studies, Welding, Concrete Control, Underpinning, Strengthening of existing structures.

101 Park Ave. New York 17, N. Y.

Severud-Elstad-Krueger

Consulting Engineers

Structural Design - Supervision

Reports - Buildings - Airports

Special Structures

415 Lexington Avenue
New York 17, N. Y.

Ole Singstad

Consulting Engineer

Tunnels Subways
Highways Foundations
Parking Garages

24 State St., New York 4, N. Y.

Frederick Snare Corporation

Engineers—Contractors

Harbor Works, Bridges, Power Plants, Dams, Docks and Terminals.

Difficult and Unusual Foundations A Specialty.

233 Broadway, New York City 7
1400 South Penn Square, Philadelphia

Havana, Cuba Lima, Peru
Bogota, Colombia, Caracas, Venezuela,
San Juan, Puerto Rico, Guayaquil, Ecuador

D. B. Steinman

Consulting Engineer

BRIDGES

Design, Construction, Strengthening, Investigations, Reports, Advisory Service

117 Liberty St., New York 6, N. Y.

Taylor, Henry W.

Water Supply, Sewerage
Garbage Disposal, Incineration
Industrial Wastes Disposal
Hydraulic Developments

11 Park Place, New York City

The J. G. White Engineering Corporation

Design—Construction
Reports—Appraisals

80 Broad Street, New York 4

Keis & Holroyd

Consulting Engineers

Formerly Solomon & Keis
Since 1906

Water Supply, Sewage Disposal, Garbage & Refuse Incineration, Industrial buildings

Troy, N. Y. Ft. Lauderdale, Fla.

The James F. Mumper Co.

ENGINEERS

Industrial plants — Steel, Rubber, Plastics and Cellulose. Steam, Diesel, Electric power. Plans Specifications — Supervision — Examinations & reports.

39 East Market St., Akron 8, Ohio.
Phone JEfferson 5939.

Gustave M. Goldsmith

Consulting Engineer

Structural and Building Design
Quantity Surveys
Production Planning

1734 Bella Vista, Cincinnati 37, Ohio

The Austin Company

Design and Construction

Manufacturing and Process Plants
Airports & Air Transport Buildings
Railroad Terminals and Facilities
Power Plants—Industrial & Institutional
Industrial Office Buildings and Laboratories

Reports and Plant Location Surveys

New York CLEVELAND Los Angeles
Chicago Houston Oakland
Detroit Seattle

Havens and Emerson

W. L. Havens C. A. Emerson
A. A. Burger F. C. Tolles F. W. Jones

CONSULTING ENGINEERS

Water, Sewage, Garbage, Industrial Wastes, Valuations—Laboratories

Leader Bldg. Woolworth Bldg.
Cleveland 14 New York 7

Burgess & Niple

Civil and Sanitary Engineers
Consultants since 1909

Water supply, treatment and distribution
Sewage and industrial wastes disposal
Investigations, reports, appraisals, rates
Plant operation, laboratory, plans and specifications.

584 E. Broad St. Columbus 15, Ohio

Jones, Henry & Schoonmaker

(formerly Jones & Henry)

Consulting Sanitary Engineers

Water Works, Sewerage & Treatment
Waste Disposal
Security Building Toledo 4, Ohio

Toledo Testing Laboratory

Engineers—Chemists

Inspection Tests
Research Development
Concrete - Asphalt - Soils - Ceramics
Foundation Investigation
Borings Diamond Drilling
Load Tests

1810 North 12th St. Toledo 2, Ohio

Glancy & Carle

Engineers

Steel & Concrete Structures
Industrial, Commercial Buildings
Design, Supervision, Reports
1506 Market Street, Youngstown, Ohio

Benham Engineering Co.

ENGINEERS

Webster L. Benham
M. Am. Soc. C. E.
Water Supply & Purification, Sewerage, Sewage Disposal, Electric Light & Power, Roads, Drainage
Am. National Bldg., Oklahoma City, Okla.

Capitol Engineering Corporation

Engineers—Constructors—Management

Bridges Dams
Planning Airports
Sewage Systems Water Works
Design and Surveys Roads & Streets
Executive Offices Dillsburg, Penna.

Joseph G. Conrath

Consulting Engineers

Concrete, Steel & Aluminum Structures, Buildings, Bridges, Bins, Tanks, Towers, Catenary, Stadia, Dams, Tunnels, Airports, Foundations, Harbors, Highways, Sanitary.

439 East 6th St. Erie 3, Pa.

Brookhart & Tyo, Inc.

Engineers

Highways
Industrial Buildings
Bridges and Structures
Design, Estimates, Reports

1729 N. Front St. Harrisburg, Pa.

Gannett Fleming Corddry & Carpenter, Inc.

ENGINEERS

Water Works, Sewage, Industrial Wastes & Garbage Disposal — Roads, Airports, Bridges & Flood Control, City Planning, Traffic & Parking, Appraisals, Investigations & Reports.

Harrisburg, Pa.

Branch Offices

Scranton, Pa. Pittsburgh, Pa.
Medellin, Colombia, S. A.
Daytona Beach, Fla
Havana, Cuba

Aero Service Corporation

Photogrammetric Engineers

Aerial Topographic Maps
Precise Photo Mosaics
Plastic Relief Models

236 E. Courtland St.,
Philadelphia 20, Pa.

Albright & Friel, Inc.

Consulting Engineers

Water, Sewage and Industrial Waste Problems, Airfields, Refuse Incinerators, Power Plants, Industrial Buildings, City Planning, Reports, Valuations, Laboratory.

121 So. Broad St., Philadelphia 7, Pa.

Day & Zimmermann, Inc.

Engineers

Designs, Construction, Valuations
Reports and Management
Public Utilities and Industrials

New York Philadelphia Chicago

Frederick H. Dechant

Consulting Engineer

Chairman of the Board,
Frederic R. Harris Inc.
Water Works, Industrial Wastes, Sewerage, Recovery Processes, Hydraulic Works, Gas Plants
Philadelphia: Fidelity Phila. Trust Bldg. New York: 27 William St.

Fridy - Gauker - Truscott & Fridy

Architects & Engineers

Water . Sewerage . Industrial Waste
Incineration . Power & Distribution
Airport . Building Town Planning

1321 Arch Street . Philadelphia 7, Pa.

William A. Goff, Inc.

General Engineering and Consulting Services

Water, Sewerage, Refuse Incineration, Industrial Buildings, Power Plants, Airports, Town Planning, Plans, Supervision, Valuations, Reports.

Broad St. Station Bldg., Phila. 3, Pa.

M. M. Fertig

Consulting Engineer

Steel & Reinf. Concrete Structures
Bridges, Industrial Plants,
Foundations, Soil Mechanics
Design, Supervision, Investigations

Columbia Bldg., Pittsburgh, Pa.

Hunting, Larsen & Dunnells

Engineers

Industrial Plants—Structures
Bridges—Steel and Reinforced Concrete
Design and Supervision—Reports

1150 Century Bldg., Pittsburgh, Pa.

Morris Knowles, Inc.

Engineers

Water Supply and Purification, Sewerage and Sewage Disposal, Valuations, Laboratory, City Planning.

Pittsburgh, Pa.

Gilbert Associates, Inc.

Engineers and Consultants

Design and Supervision of
Steam, Hydro, Water Supply,
Sewage Disposal, Diesel Plants
and Airports, Valuations, Laboratory

Reading, Pa. 412 Washington St.
New York 61 Broadway
Houston Oil & Gas Building
Washington, D. C. 1417 K St., N. W.

Michael Baker, Jr., Inc.

THE BAKER ENGINEERS

CIVIL ENGINEERS, PLANNERS, AND SURVEYORS.

MUNICIPAL ENGINEERS

Airport Design—Sewage Disposal Systems—Water Works Design and Operation—Cons. Sur.—Surveys & Maps.

Rochester, Pa. Jackson, Miss.

Lawrence A. Leary & Co.

Consulting Engineers

Brickwork & Masonry Constr. Problems
Surveys • Quantity • Safety & Inspection
Mortar Specifications

Box 269, Wayne, Penna.

Lacy, Atherton & Davis

Architects and Engineers

Hotel Sterling Building,
Wilkes-Barre, Pa.

Myers & Noyes & Associates

Consulting Engineers

Water Supply, Sewage, Flood Control, Shore Protection, Irrigation and Reclamation, Reports and Valuations

2204 Tower Petroleum Bldg., Dallas, Texas

320 Wilson Building
Corpus Christi, Texas

Lockwood & Andrews

Consulting Engineers

Airports, Paving, Industrial Plants, Drainage & Sewerage, Site Locations, Soils & Foundations, Water Supply, Structures, Harbor Works, Valuations, Reports — Design — Supervision

Union Nat'l Bank Bldg., Houston, Tex.

Engineering Services

Civil & Testing Engineers

S. D. Caplan, M.ASCE, A. M. Sans, M.ASTM

Reports, Investigations
Water Supply & Distribution
Municipal Engineering
Materials Testing

Continental Bk. Bldg., Salt Lake City

Hutchings & Milani, Ltd.

Engineers & Constructors

Industrial - Roads - Power Plants - Dams - Tunnels - Harbor Works - Foundations - Hotels

CARIBBEAN - WEST INDIES - SOUTH AMERICA
BERMUDA-CARIBBEAN CONSULTANTS, LTD.
Architects & Engineers.

Design - Reports - Investigations

L. C. Milani, ASCE; C. W. Abbott, R.I.B.A.; N. J. Senesey, A.I.A.; P. Collet; T. F. Carr; H. J. Williams; S. H. Pace; W. Weir.

BOTH HEAD OFFICES AT HAMILTON, BERMUDA.

Atlantic, Gulf and Pacific Company of Manila

Engineers
Design - Construction
Inquiries invited for work in the Philippines and Far East.
P. O. Box 628, Manila, Philippines
Cable Address: DREDGING Manila

Inspecting and Testing

Robert W. Hunt Co.

Inspecting and Testing Engineers

Inspection and Tests
of Materials
Supervision of Construction
for
Utility Plants,
Buildings, Bridges,
Machinery and Equipment

General Offices and Laboratories
175 West Jackson Boulevard, Chicago
New York — Pittsburgh — St. Louis

The Haller Testing Laboratories, Inc.

Testing and Inspecting of Construction Materials

801 2nd Avenue, New York 17, N. Y.
New York, N. Y. • Boston, Mass.
New Haven, Conn. • Plainfield, N. J.

Johnson Soils Laboratory

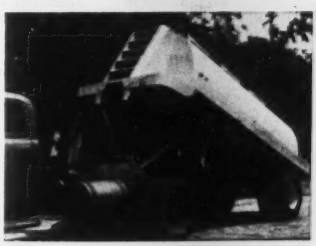
Soil testing for construction design and inspection. Specializing in MOBILE LABORATORY UNITS, fully equipped to run all standard soil tests at the site of construction. No more delays in test reports. Results where and when you want them. Pile and Soil Load Bearing Tests.

4595 Palisades Ave., New York 63, N.Y.

NEW PRODUCTS

Pax-all refuse loader available in 9, 12-yd sizes

Increased load capacity of the improved Pax-alls is provided by new body design and increased packing ability. Both sizes (9 and 12 yd) are for installation on truck chassis of 84-in. cab-to-axle dimension. Full-width rubbish-packing panel holds the load in packed position, but, during loading, is released as the bucket passes a pair of trip levers. The panel then snaps back instantly, allowing the bucket to discharge its load into the body. Packing is effected on power-down stroke of underbody hoist by means of encased legs extending through the body floor to subframe pedestals. These legs, linked by arms to the packing panel, force it through a positive packing arc. All operations of loading, packing, and dumping are powered by one double-acting hydraulic cylinder.—GAR WOOD INDUSTRIES, INC., ST. PAUL DIV., 2207 UNIVERSITY AVE., S. E., MINNEAPOLIS, MINN.

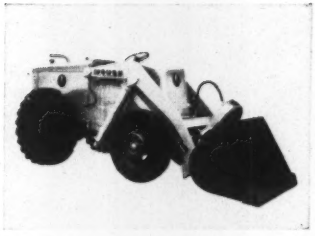


Cable-dump cement trailer

Lifting unit on this cement dump trailer consists of a 12,000-lb winch, lift arms, and the cable. The trailer is available with capacities to 30,000-lb. Features include: Reduced maintenance, lower fuel costs, and extreme maneuverability. The manufacturer states that dumping is accurate even with the cab at a 90-deg angle to the trailer. The trailer tilts to a 60-deg angle.—STEWART & STEVENSON, 1718 CONGRESS, HOUSTON, TEX.

Transformer arc welders

Wilson Bumblebee arc welders are available as indoor or all-weather models. Features include: Instant arc-starting, wide current range, easy-to-operate controls, and minimum maintenance. Current ranges are: 60 to 375 for the 300-amp model; 80 to 400 for the 400-amp model; and 100 to 675 for the 500-amp model. Automatic Hot-Start control with arc-stabilizing capacitors are provided on the 300 and 400-amp models.—AIR REDUCTION CO., INC., 60 E. 42ND ST., NEW YORK 17, N. Y.

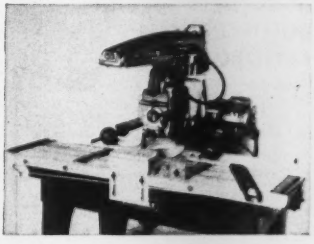


Payloader tractor-shovel

Addition to Payloader line of tractor shovels has a 1¼-yd bucket. It is available with 60-hp gasoline or diesel power. Engine is over the rear drive wheels for maximum tractive effort and capacity. The Model HY features powerful bucket crowd and automatic bucket tip-back. Full-reversing transmission provides four speeds in each direction—to a 29-mph maximum. Digging angle or bucket pitch is adjustable between 1 and 6 deg. Maximum dumping clearance is over 8 ft. —THE FRANK G. HOUGH CO., 832 7TH ST., LIBERTYVILLE, ILL.

Hydraulic tire changer

Hand-operated hydraulic pump on the Tirematic exerts 18 tons of pressure to simplify removal of heavy construction-equipment tires. It is adjustable to all sizes of tires. Included with the Tirematic is a special dolly to permit one operator to change the tire or remove the wheel for brake service.—DIXIE TALLYHO, INC., FAIRBURN, GA.



Radial-arm woodworker

DeWalt 400 series of power-fed machinery is designed to permit builders to produce hard-to-get finished materials (flooring, window stripping, molding, etc.). Power-feed unit can be swung out of position when not required permitting use of the saw for cross-cutting, mitering, cross-dadoing, sanding, and other standard operations. Material being fed is held against the cutting tool by a constant pressure. — DEWALT, INC., DEPT. ENR, LANCASTER, PA.

(*Continued on next page*)

Just Out

ENGINEERING AND WESTERN CIVILIZATION

1. **Clearly analyzes the rise of engineering as a basic factor in our western way of life.** Outlines the history of engineering from its beginning 50 centuries ago, to modern times, emphasizing the accompanying sociological and economic conditions. Covers current trends and developments, as well as probable future trends, providing a wealth of factual material. **By James K. Finch, Formerly Dean of the School of Engineering, Columbia University. 379 pages, 40 illus., $5.00**

THE EFFECTS OF ATOMIC WEAPONS

2. **A timely survey presenting the results to be expected from the detonation of atomic weapons.** The book gives you an understanding of the effects of this enormous energy release when used as a weapon of war, as a basis for the development and administration of protective measures for personnel and property. **U. S. Atomic Energy Commission and U. S. Department of Defense. 456 pages, 100 illus., $3.00**

MODERN RAILROAD STRUCTURES

3. **Brings you cost-saving practices in the design, construction, and rehabilitation of durable railroad structures.** Takes up recent practices in the use of steel piles for bridges . . . of precast concrete bridge slabs . . . and of rigid-frame and solid deck bridges. Covers economical methods of treating railroad track, soil mechanics in foundation design, design of turntables, etc. **By C. P. Disney, Consulting Engineer, and R. F. Leggett, Formerly Assoc. Prof. of Civil Eng., Univ. of Toronto. 213 pages, over 150 illus., $6.00**

CIVIL ENGINEERING HANDBOOK

4. **New third edition covers fundamentals, theory, and practice** of civil engineering. Helps you handle all kinds of civil engineering jobs. Ten big sections discuss everything from city surveying, welding and riveting. **Editor-in-Chief, Leonard C. Urquhart, Consulting Engineer, New York, N. Y., and Newark, N. J. Formerly Colonel, Corps of Eng'rs and Prof. of Structural Eng'ring, Cornell Univ. 970 pages, over 900 illustrations, tables, and diagrams, semi-flexible cover, $8.50**

SEE THESE BOOKS 10 DAYS FREE

McGRAW-HILL

McGraw-Hill Book Co., Inc., 330 W. 42nd St., New York 18

Send me book(s) corresponding to numbers encircled below for 10 days' examination on approval. In 10 days I will remit for book(s) I keep, plus few cents for delivery, and return unwanted book(s) postpaid. (We pay for delivery if you remit with this coupon; same return privilege.)

1 2 3 4

(PRINT)

Name .....

Address .....

City ..... Zone ..... State .....

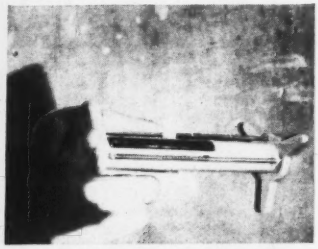
Company .....

Position ..... NR 3-22-51

This offer applies to U. S. only

Luminous acoustical ceiling

Wakefield ceiling constructions consists of: Fluorescent lamps suspended from the structural members; translucent corrugated plastic sheets located about 12 in. below the lamps; and, suspended below the plastic, perforated acoustical baffles spaced at 36-in. intervals. These baffles are wedge shaped in cross section, and are filled with sound absorbing material. Light intensity can be set to range from 50 footcandles up.—The F. W. Wakefield Brass Co., Vermilion, Ohio.



Concrete hardness tester

Instrument determines compressive strength of concrete by observing rebound of a spring-propelled hammer. It is not intended as a substitute for test cylinders, but is said to be an adjunct to them; and to speedily determine the rate at which concrete hardens for removing form work and shoring. In operation, the amount of rebound (average of 6 to 10 readings) is compared to a graph giving a measure of compressive strength. This estimate is said to be accurate within 15 to 20%.—A. R. Anderson, Springdale, Conn.

Double-closure bin valve

Twistite valve consists of two rubber sleeves joined by a rotating steel collar. Elasticity of the rubber sleeves permits them to wrap around lumps caught in the valve during closure. Standard 61-in valve weighs 35 lb with the ratchet cable-lock mounted on the valve frame. It will handle lump sizes to 2½ in., and requires a 30-lb pull for closure. — Stephens-Adamson Mfg. Co., Aurora, Ill.

Plastic pipe reducers

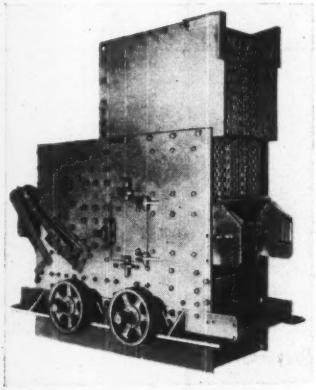
Reducing bushings and end plugs for plastic pipe are made of injection-molded thermoplastic material. They feature a hexagonal ring for positive wrench grip to facilitate installation. Bushings are available in 15 sizes ranging from 2x1¼ to ¾x½; pipe plugs, in six sizes ranging from 2 to ½ in. Bushings can be used to join plastic to plastic, or plastic lines with previously installed metallic systems. Because of the wide range of sizes, only one bushing is required to reduce any pipe diameter to any other standard size.—Carlon Products Corp., 10152 Meech Ave., Cleveland 5, Ohio.

Portable steam heater

Automatic oil-fired heater is recommended for heating large confined spaces. Burner guns are equipped with Catomic adjustable Turbulators—said to provide perfect combustion. Fuel consumption is ½ gal. of No. 2 fuel oil per hr. Fuel tank holds 30 gal. The heater is mounted on rubber-tired casters.—Quiet Automatic Oil Burner Corp., 33 Bloomfield Ave., Newark, N. J.

Air filter

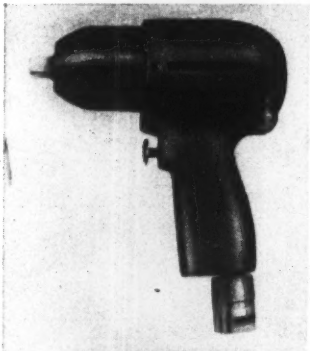
High-velocity unit air filter is made of corrugated strips of fine mesh wire. The corrugations taper so that when two strips are placed together they form a series of pyramidal pockets. Small ends of the pockets are closed to air flow to eliminate open air passages through the media. Operating velocities range to 500 fpm.—American Air Filter Co., Inc., Louisville 8, Ky.



Heavy-duty impact breaker

Feature of the PMCO Impact Master is its controlled-impact-action said to control the breaking operation and direct the flow of material through the machine to produce a highly uniform gradation cubical aggregate. Other features are: High ratio of reduction, low horsepower per ton of finished aggregate, easy access to all parts, and large volume production. The two rotor members have three rigidly supported hammers each. Both

rotate in the same direction at speeds of 550 to 1,000 rpm. Size of finished material is governed by speed of rotors, and adjustment of a stripper bar and a lower screen grate. The Model 3240 Impact Master will accept quarry run rock to 50-in. long that will pass through a 32x40-in. operation. It has a capacity of 250 tons per hr of minus 2½ in. in average limestone. In many types of rock, capacities of 125 tons of minus 1 in. are possible. Power is provided by 125 to 150-hp gasoline or diesel engines, or electric motors. Other models are available with capacities ranging up to 500 tons per hr. —Pettibone Mulliken Corp., Construction Equipment Div., 4700 W. Division St., Chicago 51, Ill.



Pneumatic impact wrench

The Model M950 impact wrench has a ⅜-in. bolt-size capacity. Impacting takes place only when the nut begins to tighten. Reverse valve is readily accessible to the operator's thumb. The wrench operates on 80 to 100-psi air pressure, and consumes 16 to 17 cfm under load. Features include: Only two impacting parts, no springs or gears, and built-in automatic oiling device. — Master Pneumatic Tool Co., Inc., 2108 Keith Bldg., Cleveland 15, Ohio.

New Product Briefs

Brik-Toter portable conveyor is now available with gasoline power unit for use where electricity is not available. Made by: Mar-Rail Conveyor Co., Pawtucket, R. I.

Plug-in humidity controller is an automatic control for operating electrically powered units. It is designed to be plugged in directly to a wall outlet. Made by: Abbeon Supply Co., Woodside, New York, N. Y.

Sharper prints by any process!

For FREE technical Test Kit • attach coupon to company letterhead and mail

NOW! BY ANY PROCESS!

SHARPER *white or blueprints!*

with the world's finest, largest selling

VENUS

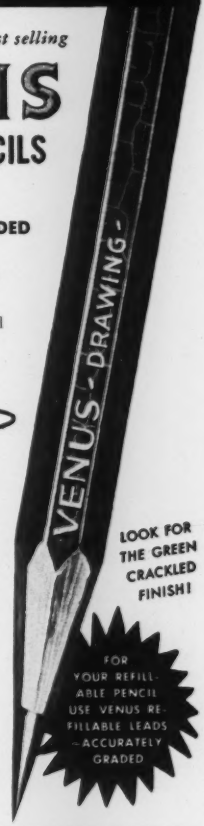
DRAWING PENCILS

- **ACCURATELY GRADED** —in 17 degrees
- **STRONGER** — the lead is *Pressure-Proofed**
- **SMOOTHER** — the lead is *Colloidal* processed*

*Exclusive Venus patent

Uniform lines in weight and tone. Opaque lines for sharp, clear reproduction. Strong points, smooth in action. No smudge; no ghosts from erasures. There's the right degree for your favorite tracing papers. The result: sharper prints—*by any process!*

TRY Venus on your papers. Then see the print quality. Get Venus *Technical Test Kit* with pencils in the degrees you want . . . . . **FREE!**



LOOK FOR THE GREEN CRACKLED FINISH!

FOR YOUR REFILLABLE PENCIL USE VENUS REFILLABLE LEADS —ACCURATELY GRADED

AMERICAN PENCIL CO., HOBOKEN, N. J.

AMERICAN PENCIL COMPANY
Hoboken, New Jersey
Dept. ENR-351

Please send me free Venus *Technical Test Kit* with two Venus Drawing Pencils in these degrees: ( ) ( ).

Name .....

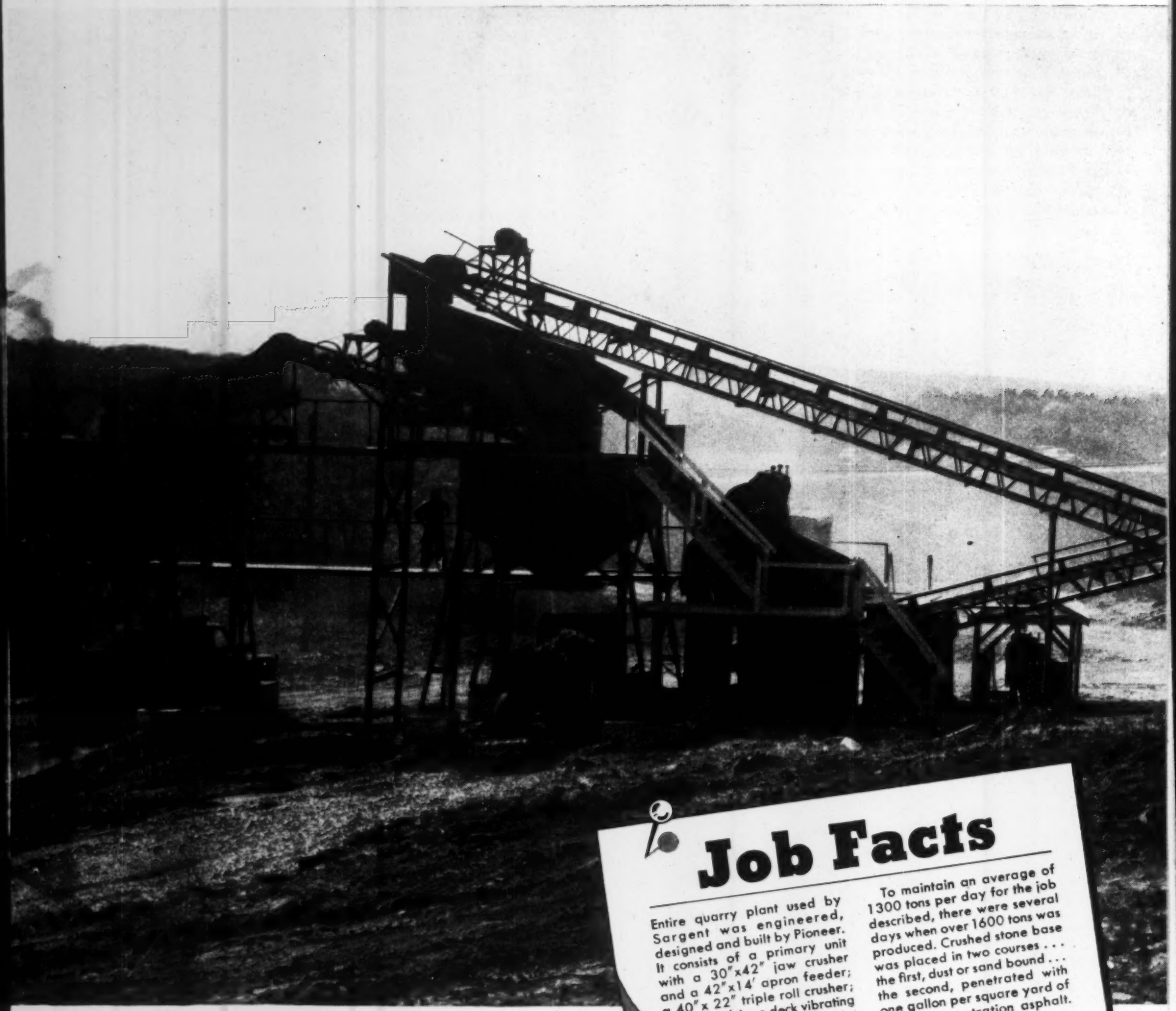
Company .....

Street .....

City ..... *State* .....

When you're racing time...

that Pioneer Edge



Job Facts

Entire quarry plant used by Sargent was engineered, designed and built by Pioneer. It consists of a primary unit with a 30"x42" jaw crusher and a 42"x14' apron feeder; a 40"x 22" triple roll crusher; a 4'x10' three deck vibrating screen; two 20 yard bins and 95' of conveyor.

To maintain an average of 1300 tons per day for the job described, there were several days when over 1600 tons was produced. Crushed stone base was placed in two courses . . . the first, dust or sand bound . . . the second, penetrated with one gallon per square yard of 85-100 penetration asphalt.

BUY BOTH!
HIGHER OUTPUT
LOWER UPKEEP

Pioneer

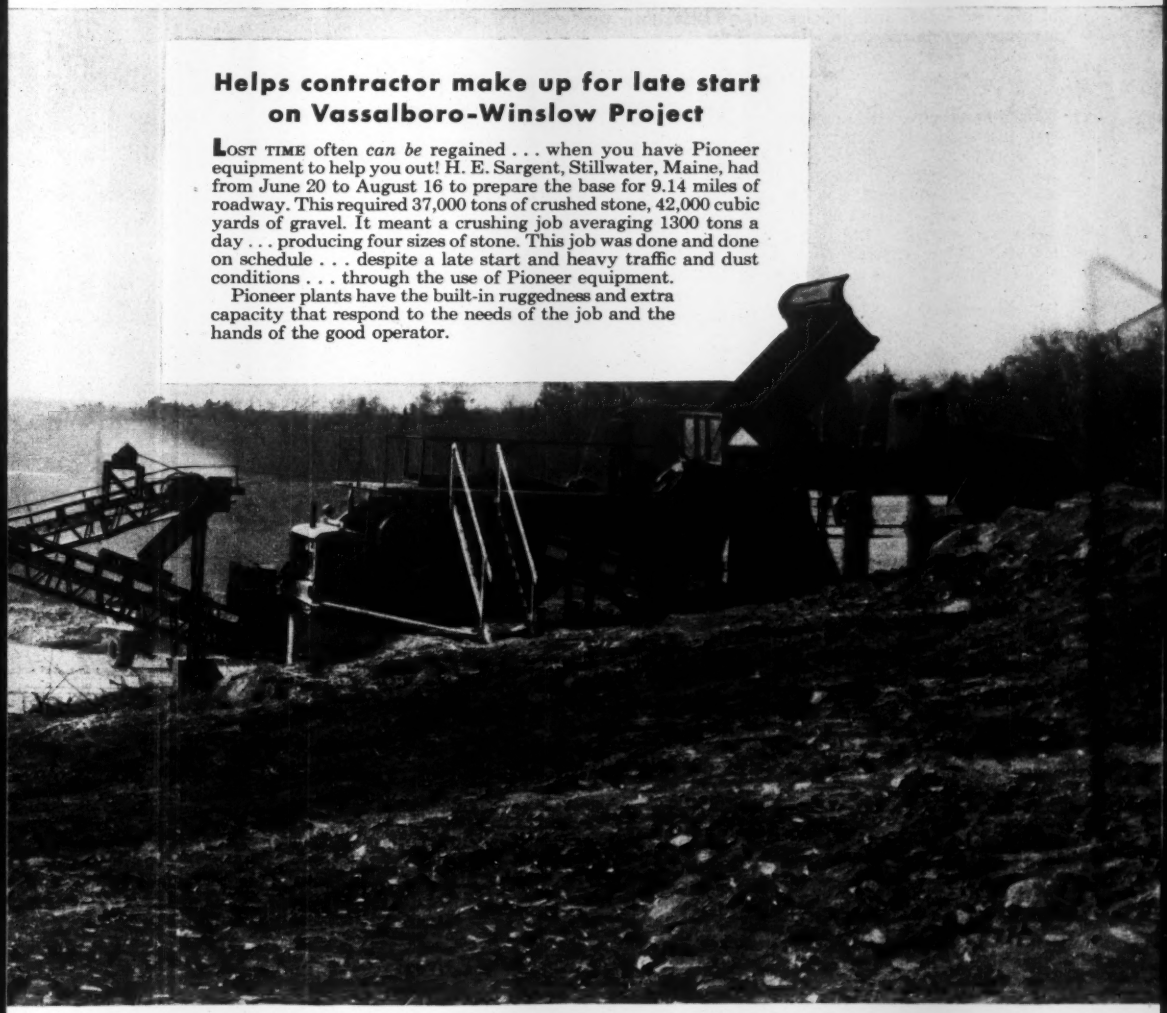
Continuflo EQUIPMENT

will help you win

Helps contractor make up for late start on Vassalboro-Winslow Project

LOST TIME often *can be* regained . . . when you have Pioneer equipment to help you out! H. E. Sargent, Stillwater, Maine, had from June 20 to August 16 to prepare the base for 9.14 miles of roadway. This required 37,000 tons of crushed stone, 42,000 cubic yards of gravel. It meant a crushing job averaging 1300 tons a day . . . producing four sizes of stone. This job was done and done on schedule . . . despite a late start and heavy traffic and dust conditions . . . through the use of Pioneer equipment.

Pioneer plants have the built-in ruggedness and extra capacity that respond to the needs of the job and the hands of the good operator.



HAVE THAT

Pioneer Edge

WHEN YOU BID

Who gets the job when bidding is close? The operator who can get the most in production per hour, per dollar, per machine, per man. Have that Pioneer Edge on your side! Send coupon for more facts and figures.

PIONEER ENGINEERING WORKS

1515 Central Avenue • Minneapolis 13, Minnesota

● Please send me information on the equipment checked.

☐ GRAVEL PLANTS	☐ WASHING PLANTS	☐ MECHANICAL FEEDERS
☐ ROCK PLANTS	☐ BITUMINOUS PLANTS	☐ VIBRATING SCREENS
☐ JAW CRUSHERS	☐ APRON FEEDERS	☐ BUZZER SCREENS (LIGHT DUTY)
☐ ROLL CRUSHERS	☐ ORO FEEDERS	☐ CONTINUFLO CONVEYORS

*Name*_____

*Company*_____

*Address*_____

*City*_____ *Zone*____ *State*_____

MANUFACTURERS' PUBLICATIONS

Plastic pipe—Illustrated catalog lists information on characteristics of Johnsonite plastic pipe. Features and recommended installations for this type of pipe are listed, and principal advantages are described in detail.—JOHNSON PLASTIC CORP., BROWN ROAD, CHAGRIN FALLS, OHIO.

Plaster-mortar mixers—Method of comparing construction features, dimensions, and capacities of various types and sizes of plaster-mortar mixers is provided in this 8-p catalog. It features photographs depicting exclusive Kwik-Mix features; and schematic drawings listing detailed dimensions of the 6 and 10-ft units.—KWIK-MIX CO., SUBS. KOEHRING CO., PORT WASHINGTON, WIS.

Flexible couplings—Engineering information for proper applications of RC roller-chain flexible-shaft couplings is listed in 4-p Folder 2363. Data listed cover dimensions, weights, service factors, and horsepower ratings. Detailed data are also given on two types of protective grease-retaining casings.—LINK-BELT CO., 307 N. MICHIGAN AVE., CHICAGO 1, ILL.

Electric drills—Care and application of portable electric drills is discussed in detail in this 36-p booklet. It features helpful tips on how to achieve the best results with this equipment. Several sections are devoted to a step-by-step explanation of technical drilling operations, such as drilling pilot holes, drilling concentric in a scribed circle, and the proper drilling of various materials. Tables and charts list drill sizes and speeds required for specific types of jobs.—MALL TOOL CO., 7730 S. CHICAGO AVE., CHICAGO 19, ILL.

Metal lath specifications—Revised 1950 specifications for metal lathing and furring are available in booklet form. Although the specifications are substantially the same, the booklet has been completely rearranged for easy reference. It covers solid, hollow, and sound-insulating partitions, and all types of ceiling construction. It is illustrated and interspersed with relevant tables.—METAL LATH MANUFACTURERS ASSN., 636 ENGINEERS BLDG., CLEVELAND 14, OHIO.

Water-conditioning equipment—Eight-page folder describes *ion*Xchange water-conditioning equipment. This includes softeners, hydrogen zeolite, de-ionizers, and the newly developed Illco-Way mixed-bed de-ionizer. Bulletin A includes specifications on package-type units available for flow rates up to 1,000 gph.—ILLINOIS WATER TREATMENT CO., 899 CEDAR ST., ROCKFORD, ILL.

Tubular-steel scaffolding—Photographs and line drawings in Bulletin PSS-24 are designed to present detailed information on erection and dismantling of Trouble Saver sectional tubular steel scaffolding. These pictures illustrate many on-the-job applications ranging from rolling scaffolds and other small assemblies to large erections covering entire buildings.—THE PATENT SCAFFOLDING CO., INC., 38-21 TWELFTH ST., LONG ISLAND CITY 1, N. Y.

High-speed generators—Standby, portable, and prime-source generators in ratings from 1.875 to 50 kva with frequencies of 60 and 400 cycles are listed in Bulletin GEA-5470. Four designs of the Tri-Clad synchronous generators are listed: Externally regulated, self regulated, packaged-regulated 4-pole synchronous, and high-frequency 14-pole synchronous generators. The bulletin features product pictures, cutaway and exploded-view photographs, and listings of design and construction details.—GENERAL ELECTRIC CO., APPARATUS DIV., SCHENECTADY 5, N. Y.

Lubricant data book—Information on Lubriplate lubricants and their uses are contained in this 54-p booklet. Booklet 1-50 describes the control and affects of friction, lists the various Lubriplate products, the principal applications of each, and contains other valuable information. A special listing covers the Lubriplate recommendations for construction equipment.—FISKE BROS. REFINING CO., LUBRIPLATE DIV., 129 LOCKWOOD ST., NEWARK 5, N. J.

Diesel-powered Euclids—Two new 16-p booklets (EGM-1 and ECE-10) cover Cummins and General Motors powered Euclid equipment. These list, by model number, the various diesel engines and Euclid equipment in which they are available. Specifications for rear-dump and bottom-dump hauling units, scrapers, and loaders are included. Engine dealers and Euclid distributors in the USA and Canada are listed.—THE EUCLID ROAD MACHINERY CO., CHARDON ROAD, CLEVELAND 17, OHIO.

ADVERTISERS IN THIS ISSUE

American Hoist & Derrick Co.....40, 41
American Pencil Co..... 73

Bethlehem Steel Co..... 1
Blaw-Knox Div., Blaw-Knox Co..... 12
Builders-Providence, Inc. 49

Cement Gun Co..... 56
Clearprint Paper Co..... 42
Commercial Shearing & Stamping Co... 52

Dearborn Chemical Co..... 10
Deming Co., The..... 38

Electric Steel Foundry Co..... 77

Faber-Castell Pencil Co., A. W..... 53
Ford Motor Co.....4th Cover

General Electric Co.....2nd Cover
Greenlee Tool Co..... 4
Gulf Refining Co..... 5
Gunite Concrete & Construction Co..... 47

Indiana Gunite & Construction Co., Inc. 48
Irvington Form & Tank Corp..... 46

Jenkins Bros. 8

La Crosse Trailer Corp..... 43
Leupold & Stevens Instruments, Inc..... 44

M & H Valve & Fitting Co..... 56
McGraw-Hill Book Co..... 72
McKiernan-Terry Corp. 55
Mesker Steel Corp., George L..... 49
Nelson Stud Welding Div.,
Morton Gregory Corp..... 46

Northwest Engineering Co..... 3

Phoenix Bridge Co..... 47
Pioneer Engineering Works..... 76
Pittsburgh-Des Moines Steel Co..... 55

Ramset Fasteners, Inc..... 51
Raymond Concrete Pile Co.....3rd Cover
Rockford Clutch Div., Borg-Warner..... 48

Sauerman Bros. 52
Silver Rod Sales..... 55
Skilsaw, Inc. 78, 79
Smith Engineering Works.....6, 7
Sparling Meter Co..... 47
Sprague & Henwood, Inc..... 55

Trailer Village, Inc..... 48

Union Metal Mfg. Co..... 14

Wild Surveying Instruments of America,
Inc., Henry 2

Professional Services 68, 69, 70

SEARCHLIGHT SECTION

(Classified Advertising)

Employment.....63, 64, 65

Equipment
(Used or Surplus New)
For Rent 67
For Sale 66, 67, 68

Wanted
Equipment 65

ENGINEERING NEWS-RECORD

E. E. WEYENETH, *Manager* — HOWARD T. OLSEN, *Assistant Manager*

J. G. JOHNSON, *Business Manager*

Sales Representatives: D. S. Robertson and E. A. Callahan, Jr., 330 W. 42nd St., *New York;* F. G. Hudson, L. H. Hunt, W. G. Payne, 520 N. Michigan Ave., *Chicago;* J. W. Otterson, R. E. Dorland, 68 Post St., *San Francisco;* A. B. Cozzens, 17th & Sansom Streets, *Philadelphia;* E. E. Duff, Jr., Hanna Bldg., *Cleveland;* B. F. Horn, Penobscot Bldg., *Detroit;* W. E. Donnell, Continental Bldg., *St. Louis;* H. L. Keeler, 1111 Wilshire Blvd., *Los Angeles;* R. C. Maultsby, Rhodes-Haverty Bldg., *Atlanta;* J. H. Allen, Jr., First National Bank Bldg., *Dallas. Other Sales Offices:* 738-39 Oliver Bldg., *Pittsburgh;* 1427 Statler Bldg., *Boston;* Aldwych House, *London.*

Cheaper by the Yard

...or why contractors use *ESCO* Dipper Buckets

3-yard ESCO Cast-Welded dipper on Lima 1201, working on Cuyuna range stripping operation of S. J. Groves & Son.

GREATER PAYLOAD CAPACITY per pound of bucket; fast loading; quick, complete discharge; ability to stand up under punishment—these are some of the qualities of *ESCO* Cast-Welded general purpose dipper buckets that give the operator more passes a day and more payload with each pass. They are the qualities that reduce the cost per yard of material moved.

Here are some of the jobs on which the built-in performance of *ESCO* buckets has been fully demonstrated: Neversink Dam; Garrison Dam; Pennsylvania Turnpike extensions; Merriam Dam; Washington-Baltimore Express Highway; Wautauga Dam; Beveridge Parkway; Pittsburgh Express Highway.

The records of sustained service made by *ESCO* dipper buckets under severe digging conditions are possible only because of their rugged construction. Details of construction and full information on sizes, dimensions and weights are contained in *ESCO* catalog 156-B. Get a copy from the *ESCO* office nearest you, or fill in and mail the coupon. Dealers in all major cities.

ESCO DIPPER, DRAGLINE AND COAL LOADING BUCKETS

ELECTRIC STEEL FOUNDRY

2167 N. W. 25th Avenue, Portland 10, Oregon

Sales Offices and Warehouses

Chicago, Ill.	Houston, Texas	Los Angeles, Calif.
Eugene, Oregon	Spokane, Wash.	New York City
Honolulu, T. H.	Seattle, Wash.	San Francisco, Calif.

In Canada— *ESCO* Limited, Vancouver, B. C.

ELECTRIC STEEL FOUNDRY
2167 N. W. 25th Avenue, Portland 10, Oregon
Please air mail catalog 156-B on your Cast-Welded Dipper Buckets to

Name_____

Company_____

Address_____

City_____

Zone_____ State_____

Make and model of machine used_____

"With just ONE

SKIL Radial Saw — Model 450

A complete construction workshop. 2 h.p., 14" blade; 3 or 5 h.p., 16" blade. Easily operated with speed and precision by one man. SKIL RADIAL SAWS also available in 115/230 volts and 220/440 or 550 volts with manual or maanetic control.

1 "We are cutting lumber for 500 houses...

"The SKIL Radial Saw is a MUST on multiple home-construction"

Say Dewey and Willis Larr, builders in Dallas, Texas. Here are their reasons . . . in their own words

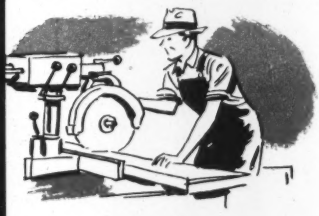
"With one saw we are able to keep 17 men busy at all times"

Dewey and Willis Larr cut production time to the very minimum by using their SKIL Radial Saw to pre-cut joists, bridging, studs . . to cut and notch rafter assembling into the roof trusses.

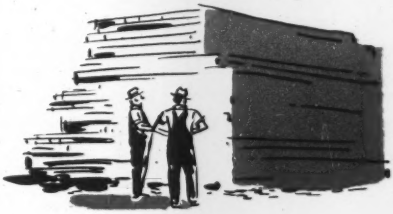
The SKIL Radial Saw makes any cuts, grooves, or shapes . . . becomes a complete and reliable construction workshop operated by just one man.

SKIL Radial Saw—

2 "Keeping 17 men busy at all times with just 1 saw operator



3 "We have cut more than a million board feet of lumber



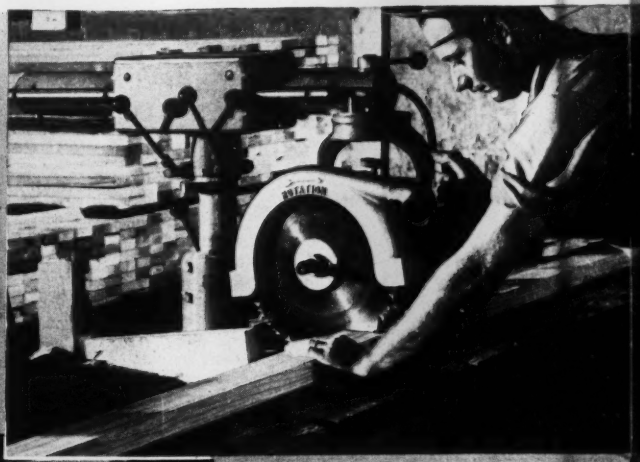
4 "We have had practically no maintenance cost in 2 years of use"

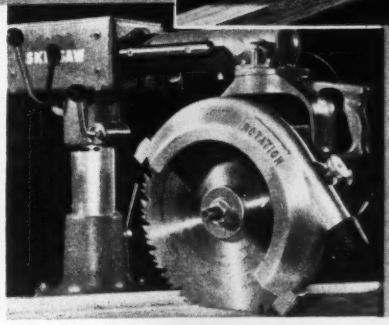
"This saw gives us greater accuracy in gang cutting"

Like hundreds of other builders, this Dallas company appreciates the precision with which the SKIL Radial Saw operates in gang cutting. Alignment to within 1/100 inch—gives constant accuracy for the life of the machine. That saves cutting . . . means less waste, faster work.

"The ease of handling and quick adjustments save time"

One man handles the entire operation. All controls are adjusted without leaving the operating position. Adjustments for various cuts are made with front-positioned, handy levers. Special stops automatically set saw at common cutting angles, eliminating guesswork. All SKIL Radial Saw settings are quickly, conveniently and accurately made.





"We have had practically no maintenance cost"

This SKIL Radial Saw has been on the job every day for 2 years, yet there has been practically no maintenance cost. This saw is built to last longer, give more trouble-free service. All parts are precision made of highest quality materials. Motors are completely enclosed for protection against dirt, dust, and moisture. Felt wicks keep rails clean, prevent trouble-making accumulations of resin.

SAVE TIME, SAVE WORK, SAVE MATERIAL, SAVE MANPOWER.
USE A JOB-PROVED SKIL RADIAL SAW.

Ask your SKIL Distributor to demonstrate this better saw today or write for literature.

* * *

SKIL Tools are made only by SKILSAW, INC., 5033 Elston Avenue, Chicago 30, Illinois

Factory branches in principal cities • In Canada: Skiltools, Ltd., 66 Portland Street, Toronto, Ontario

SKIL
PORTABLE TOOLS

Letter from PITTSBURGH—

Allegheny County's sewage disposal program is only slightly less clouded than the area's major streams.

Initially, the County Sanitary Authority had plans for a unified, overall waste disposal system involving a single, $85,000,000 sewage plant (to have been located below Pittsburgh) serving the county's hundred or more communities.

But individual municipalities have shown a preference for separate programs. Even Pittsburgh, countyseat and principal contributor to the Allegheny County Sanitary authority, has seen the problem, and reserved its right to act independently of the authority after planning is done. This in spite of the fact that John F. Laboon and the Sanitary Authority he heads have completed preliminary work without major criticism. The master plan for the county now seems impossible of arrangement.

• **Stirring the stream**—Rivalry between John J. Kane, chairman of the board of Allegheny County Commissioners, which set up the Sanitary Authority, and Mayor David L. Lawrence of Pittsburgh is thought in some quarters to add an extra factor of uncertainty to the future of the authority.

Both men are nationally prominent Democrats, and were allies for many years. Now prestige and possibilities of patronage latent in the county-wide undertaking are said to be coming between them.

The latest move is Mayor Lawrence's appointment of a nine-man committee to study in detail city water-supply and sewerage problems. Friends of the county forsee a Pittsburgh Authority threatening to supersede the present Sanitary Authority. Others feel that the committee's makeup assures public-spirited recommendations.

• **The bird that flew**—One of the major reasons behind the appointment of the committee was the city's interest in the South Pittsburgh Water Co. which until recently was up for sale at a price of $25,000,000. The Sanitary Authority was interested in the plant (as a source of revenue), but had delayed action on the offer (ENR Oct. 5, 1950, p. 24). The company was recently taken off the market.

• **New approach**—Latest strategy of the authority is its "Project Z," which seeks a more limited objective than the solitary waste disposal plant for the entire county. Instead a $60,000,000 plant is planned for the Pittsburgh area, to serve the city and the 59 other municipalities which are committed to the program by firm contract with the authority, and any successor to it that may develop.

Even with the more limited scheme of action, 40 municipalities have failed to agree to cooperate, although they may participate at any time in the Pittsburgh project provided cost of additional interceptors and treatment capacity does not increase the money burden to Pittsburgh itself.

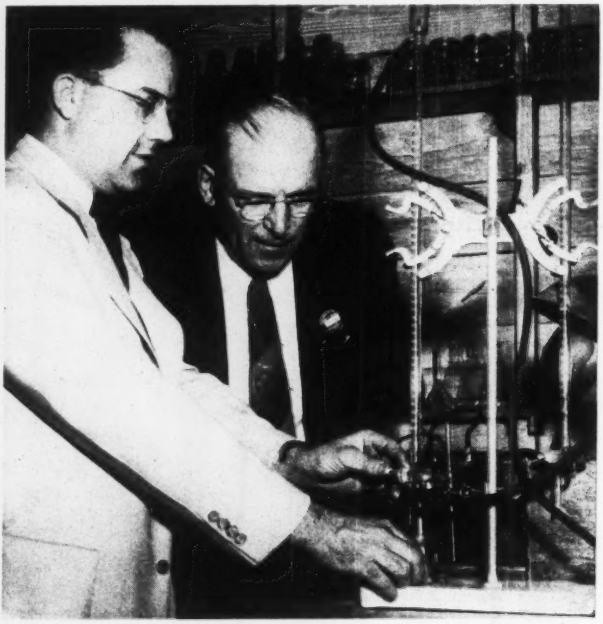
Non-cooperating authorities now being set up find that the cost of their service may be five times as high as that possible under the single overall county program initially offered by the authority's plan.

But on the Pittsburgh front things are moving ahead. Two contracts for borings totaling $65,000 have been let to the Pennsylvania Drilling Co. of that city, and a pilot plant treating 100,000 gpd has been constructed.

Metcalf & Eddy, of Boston, have been taken on as consulting engineers to prepare plans and specifications for the proposed sewage treatment plant.

• **They roll their own**—The Sanitary Authority's own staff will design the major intercepting sewers which are expected to cost $35,000,000. Big problem faced by "Project Z" is the connecting of descending lines of sewers with tunnel interceptors to be located some 100 ft underground.

The project includes the construction of 65 miles of interceptors, 35 miles of which are in tunnel. The sewage treatment plant ultimately will have a capacity of 150,000 mpg. Site: Just under the McKees Rocks Bridge, Pittsburgh side of the Ohio. When completed, the average householder's cost will be about $10 a year.



MORE THAN A VISIT—John F. Laboon, chairman of the Allegheny County Sanitary Authority, inspects equipment at the pilot plant and laboratory established to develop improved methods of sewage treatment. Laboon is on the right.

RAYMOND

SERVING GULF OIL FOR 40 YEARS

THROUGH THE YEARS, the Gulf Oil Corporation has turned to Raymond again and again to expand its facilities. For example:

At Gulf's marine terminal in Port Arthur, Texas, Raymond completed in 1911 a marginal wharf 25 feet wide and 1,053 feet long. Later two similar sections were added to make the wharf more than a half mile long. Last year Raymond resurfaced the existing wharf with reinforced concrete and constructed a new wharf 25 feet wide along its outer face—doubling the dock area and permitting deeper dredging to accommodate large vessels. The job was completed well ahead of schedule and with a minimum of interference with Gulf's normal docking operations.

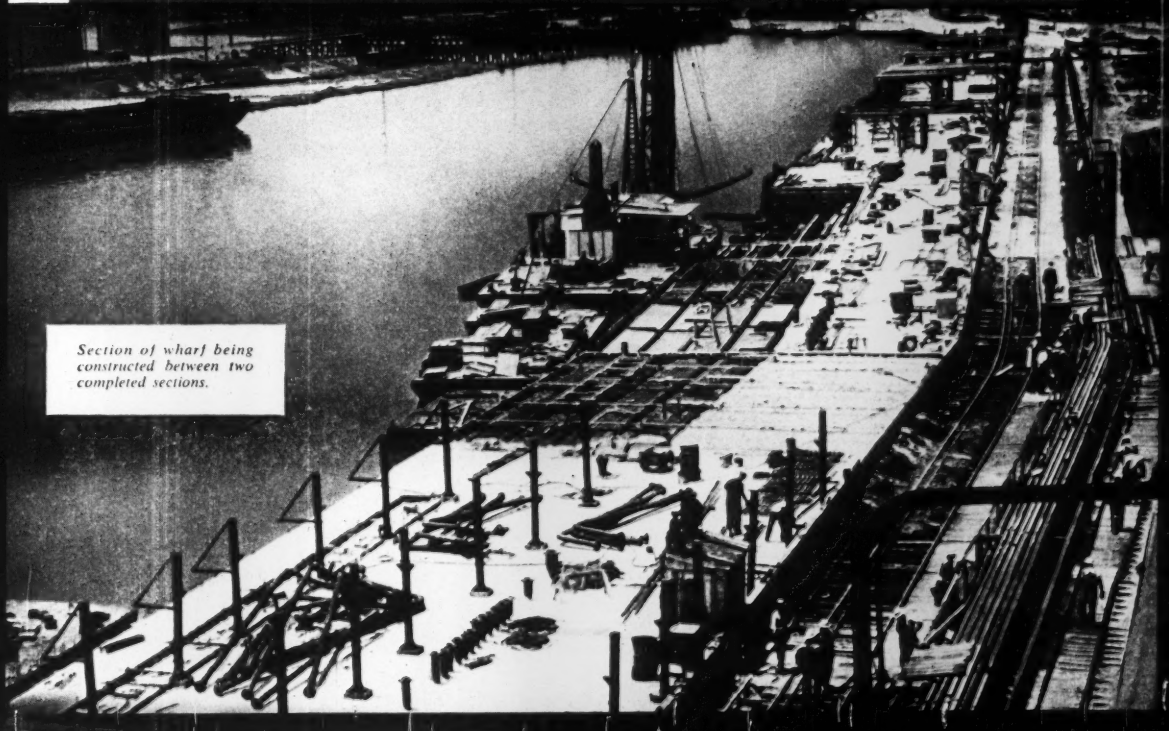
Gulf Oil is one of the leading oil companies which have consistently turned to Raymond for important foundation and structural projects. This wealth of experience is at your disposal.

THE SCOPE OF RAYMOND'S ACTIVITIES—includes every recognized type of pile foundation—concrete, composite, precast, steel, pipe and wood. Also cutwater, underpinning, construction involving shore protection, shipbuilding facilities, harbor and river improvements, borings for soil investigation, and cement mortar lining of oil and water pipe lines 4" to 144" in diameter by the Centriline Corporation, a Raymond subsidiary.

RAYMOND CONCRETE PILE COMPANY

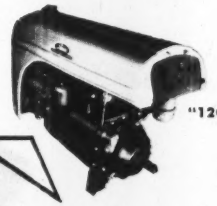
140 CEDAR STREET, NEW YORK 6, N. Y.

BRANCH OFFICES: Boston, Spokane, Philadelphia, Baltimore, Washington, Pittsburgh, Atlanta, Miami, Havana, Kansas City, St. Louis, Cleveland, Chicago, Detroit, Salt Lake City, Portland, San Francisco, Oakland, Los Angeles and principal cities in Latin America.



Section of wharf being constructed between two completed sections.

YOUR job is Well-Powered when it's Ford-Powered



Ford "120" POWER UNIT

From the smallest

to the biggest

Ford INDUSTRIAL ENGINES

• • • Ford Industrial Engines and Power Units offer a broad range of models—4-cylinder, sixes and eights—that cover just about every type of industrial application, and do it RIGHT. That's one big reason why more and more leading machinery and equipment builders look to Ford Industrial Engines and Power Units for the economical, reliable solution of their power problems.

Ford "337" POWER UNIT

FORD POWER IS RIGHT 3 WAYS

Just look at these typical applications

FORD "120" (4 cylinders, 120 cu. in. displacement) —feed mills . . . concrete mixers . . . road sweepers . . . sprayers . . . ditchers . . . snowplows . . . material handling . . . welders . . . generator sets

FORD "226" (six cylinders, 226 cu. in. displacement) —hoists . . . pumps . . . feed mills . . . generator sets . . . material handling equipment . . . earth boring machines . . . airport tractors . . . bituminous spreaders

FORD "239" (eight cylinders, V-type, 239 cu. in. displacement)—portable sawmills . . . feed mills . . . hoists and cranes . . . pumps . . . generator sets . . . electric stand-by units . . . positive displacement pumps . . . compressors . . . concrete mixers . . . straddle trucks

FORD "254" (six cylinders, 254 cu. in. displacement) —road machinery . . . hoists and cranes . . . pumps . . . feed mills . . . logging equipment . . . portable sawmills . . . jetting pumps . . . frost protection machinery . . . drag lines . . . earth boring machines . . . rock crushers . . . generator sets

FORD "337" (eight cylinders, V-type, 337 cu. in. displacement)—logging equipment . . . portable sawmills . . . drag lines . . . railroad switch engines . . . coal recovery machines . . . asphalt plants . . . rock crushers . . . snow removal machinery . . . feed mills . . . road machinery . . . generator sets . . . hoists and cranes . . . pumps

☆

1. **RIGHT POWER**—*your choice of five great engines to fit your application*

2. **RIGHT FEATURES**—*all the latest advancements of Ford's famed progressive engineering*

3. **RIGHT SERVICE** *and Parts—as near as the nearest Ford Dealer*

☆

INDUSTRIAL ENGINE DEPARTMENT
Tractor & Industrial Engine Division
FORD MOTOR COMPANY
Highland Park, Michigan

MAIL THIS COUPON FOR LATEST LITERATURE

INDUSTRIAL ENGINE DEPT., FORD MOTOR COMPANY
15050 Woodward Ave., Highland Park 3, Michigan

I am interested in Industrial Power for _____
Send me *new* 1951 literature about Ford Industrial Engines and Power Units
☐ "120" ☐ "226" ☐ "239" ☐ "254" ☐ "337" as checked

Name _____
(Please print)
Street _____
City _____ *Zone* _____ *State* _____

A